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(see page 2)

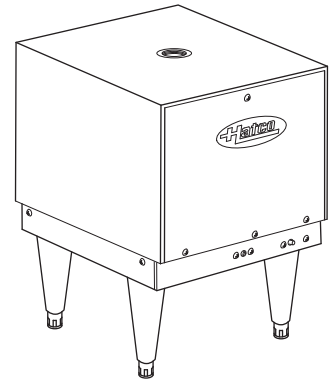
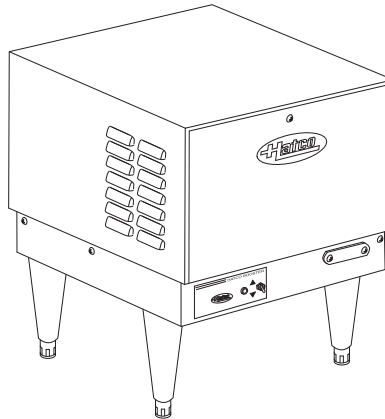
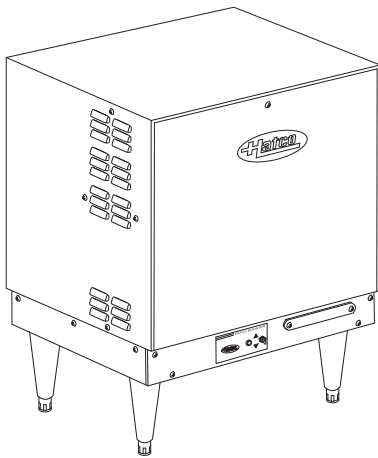


Electric Booster Water Heaters

Imperial 'S', Compact 'C', Mini-Compact 'MC' Series

Installation and Operating Manual

P/N 07.04.111.00



⚠ WARNING

Do not operate this equipment unless you have read and understood the contents of this manual! Failure to follow the instructions contained in this manual may result in serious injury or death. This manual contains important safety information concerning the maintenance, use, and operation of this product. If you're unable to understand the contents of this manual, please bring it to the attention of your supervisor. Keep this manual in a safe location for future reference.

⚠ ADVERTENCIA

No opere este equipo al menos que haya leído y comprendido el contenido de este manual! Cualquier falla en el seguimiento de las instrucciones contenidas en este manual puede resultar en un serio lesión o muerte. Este manual contiene importante información sobre seguridad concerniente al mantenimiento, uso y operación de este producto. Si usted no puede entender el contenido de este manual por favor pregunte a su supervisor. Almacenar este manual en una localización segura para la referencia futura.

⚠ AVERTISSEMENT

Ne pas utiliser cet équipement sans avoir lu et compris le contenu de ce manuel ! Le non-respect des instructions contenues dans ce manuel peut entraîner de graves blessures ou la mort. Ce manuel contient des informations importantes concernant l'entretien, l'utilisation et le fonctionnement de ce produit. Si vous ne comprenez pas le contenu de ce manuel, veuillez le signaler à votre supérieur. Conservez ce manuel dans un endroit sûr pour pouvoir vous y référer plus tard.

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IMPORTANT OWNER INFORMATION

Record the model number, serial number, voltage, and purchase date of the unit in the spaces below (specification label located on the unit). Please have this information available when calling Hatco for service assistance.

Model No. _____

Serial No. _____

Voltage _____

Date of Purchase _____

Register your unit!

Completing online warranty registration will prevent delay in obtaining warranty coverage. Access the Hatco website at **www.hatcocorp.com**, select the *Parts & Service* pull-down menu, and click on "Warranty Registration".

Business Hours: 8:00 AM to 5:00 PM
Central Standard Time (C.S.T.)
(Summer Hours: June to September –
8:00 AM to 5:00 PM C.S.T.
Monday through Thursday
8:00 AM to 2:30 PM C.S.T. Friday)

Telephone: (800) 558-0607; (414) 671-6350

E-mail: partsandservice@hatcocorp.com

Fax: (800) 690-2966 (Parts and Service)
(414) 671-3976 (International)



24 Hour 7 Day Parts and Service
Assistance available in the United States
and Canada by calling (800) 558-0607.

Additional information can be found by visiting our web site at **www.hatcocorp.com**.

INTRODUCTION

Hatco Electric Booster Water Heaters are designed for use with commercial dish machines to boost the temperature of the regularly available hot water, usually 110°–150°F (43°–66°C) up to 180°F (82°C). Water at 180°F (82°C) can be used as sanitizing rinse water in commercial dish machines in accordance with Health Codes, NSF Standard #5 and plumbing codes.

All Hatco Booster Heaters are ready for electrical and plumbing service connections, with an adjustable ambient compensated immersion thermostat(s) and a high temperature limit switch. The service area is accessible from the front of the unit, permitting easy access.

Hatco Electric Booster Water Heaters are products of extensive research and field testing. The materials used were selected for maximum durability, attractive appearance, and optimum performance. Every unit is inspected and tested thoroughly prior to shipment.

This manual provides the installation, safety, and operating instructions for the Hatco Electric Booster Water Heaters. Hatco recommends all installation, operating, and safety instructions appearing in this manual be read prior to installation or operation of the unit.

Safety information that appears in this manual is identified by the following signal word panels:

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.



IMPORTANT SAFETY INFORMATION



Read the following important safety information before using this equipment to avoid serious injury or death and to avoid damage to equipment or property.



WARNING

ELECTRIC SHOCK HAZARD:

- Unit must be installed by qualified, trained installers. Installation must conform to all local electrical and plumbing codes. Installation by unqualified personnel will void the unit warranty and may lead to electric shock or burn, as well as damage to unit and/or its surroundings. Check with local plumbing and electrical inspectors for proper procedures and codes.
- Turn OFF power at fused disconnect switch/circuit breaker and allow unit to cool before performing any cleaning, adjustments, or maintenance.
- Consult a licensed electrical contractor for proper electrical installation conforming to local electrical codes and the National Electrical Code (N.E.C.).
- Unit is not weatherproof. Locate unit indoors where ambient air temperature is a minimum of 70°F (21°C).
- Do not place aftermarket covers on or over booster heater. Doing so can cause temperature and moisture build-up resulting in premature failure and electrical shock.
- This unit must be serviced by qualified personnel only. Service by unqualified personnel may lead to electric shock or burn.
- Use only Genuine Hatco Replacement Parts when service is required. Failure to use Genuine Hatco Replacement Parts will void all warranties and may subject operators of the equipment to hazardous electrical voltage, resulting in electrical shock or burn. Genuine Hatco Replacement Parts are specified to operate safely in the environments in which they are used. Some aftermarket or generic replacement parts do not have the characteristics that will allow them to operate safely in Hatco equipment.

Valves supplied by Hatco are designed for high-temperature commercial operation. Do not substitute Hatco valves with valves designed for domestic water heaters.

Temperature/pressure protective equipment should not be less than a combination temperature/pressure relief valve certified by a nationally recognized testing laboratory that maintains periodic inspection of the production of this equipment and meets the requirements for Relief Valves and Automatic Shutoff Devices for Hot Water Supply Systems, ANSI Z21.22-1979. The temperature/pressure relief valve must be marked with a minimum set pressure not to exceed the marked hydrostatic test pressure of the booster heater as noted on the unit specifications.

EXPLOSION HAZARD: Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.



WARNING

FOR INSTALLING PRESSURE AND TEMPERATURE RELIEF VALVES IN ACCORDANCE WITH AMERICAN NATIONAL STD. Z21.22-1979. Combination pressure and temperature relief valves with extension thermostats must be installed so that the temperature-sensing element is immersed in the water within the top 6" (152 mm) of the tank. They must be installed directly in a tank tapping. Combination pressure and temperature relief valves that do not have extension elements must be mounted directly in a tank tapping located within the top 6" (152 mm) of the tank, and shall be adequately insulated and located so as to assure isolation from ambient conditions that are not indicative of stored water temperature. **TO AVOID WATER DAMAGE OR SCALDING DUE TO VALVE OPERATION, DRAIN PIPE MUST BE CONNECTED TO VALVE OUTLET AND RUN TO A SAFE PLACE OF DISPOSAL.** Discharge line must be as short as possible and be the same size as the valve discharge connection throughout its entire length. Drain line must pitch downward from the valve and must terminate between 1-1/2" (38 mm) and 6" (152 mm) above the floor drain where any discharge will be clearly visible. The drain line shall terminate plain, not threaded, with material serviceable for temperatures up to 250°F (121°C) or greater. Excessive length, over 30' (9.1 m), or use of more than four elbows can cause a restriction and reduce the discharge capacity of the valve. No shut-off valve shall be installed between the relief valve and tank, or in the drain line. Valve lever must be tripped periodically to assure that waterways are clear. This device is designated for emergency safety relief and shall not be used as an operating control. The valves are set to relieve at 150 psi (1034 kPa) or when water temperature reaches 210°F (99°C). Read tag on valve for additional information.

Use only plumbing material suitable for a minimum water temperature of 200°F (93°C). Materials used must meet National Sanitation Foundation (NSF) specifications and all local plumbing codes and regulations.

Units are equipped with a high temperature limit safety switch that will shut off the power if the unit overheats. Contact an Authorized Hatco Service Agent if the high temperature limit safety switch cannot be reset or continues to trip.

Install booster water heater in a horizontal position with the base parallel to the floor and the inlet connection at the lowest point. Improper installation could create an unsafe condition.

Do not connect booster water heaters to domestic (consumer) dish machines or other domestic utilized equipment. This booster may damage domestic equipment.

IMPORTANT SAFETY INFORMATION



Read the following important safety information before using this equipment to avoid serious injury or death and to avoid damage to equipment or property.

WARNING

This product contains fiberglass, a product known to the state of California to cause cancer, birth defects, or other reproductive harm.

Install booster water heater as close as possible to a commercial dish machine. Employ re-circulation if distance between water heater and dish machine exceeds National Sanitation Foundation (NSF) specifications of five (5) linear feet (1524 mm).

Follow standard welding safety and operational procedures when attaching sliderrails to bottom of dishtable.

Make sure the dishtable is strong enough to support the weight of the heater AND water when installing with slide mounting brackets.

Refer to the **BOOSTER HEATER SIZING CHART** in this manual to ensure proper sizing and avoid personal injury and/or damage to the booster heater.

It is essential to recognize that even though a water heater may be properly installed initially and approved, there always exists the possibility that unknowing individuals might alter or change the installation in a manner that would render it unsafe. Therefore, it is important that all safety programs provide some mechanism to assure that these installations are inspected periodically.

This unit has no "user-serviceable" parts. If service is required on this unit, contact an Authorized Hatco Service Agent or contact the Hatco Service Department at 800-558-0607 or 414-671-6350; fax 800-690-2966; or International fax 414-671-3976.

CAUTION

BURN HAZARD:

- Water in unit is very hot. Wear protective gloves and proper attire when operating to avoid injury.
- Valves supplied by Hatco are designed for high temperature commercial operation. Do not substitute Hatco valves with valves designed for domestic water heaters.

Do not use anti-siphon valves on incoming water line.

Check valves on incoming water line is not recommended. Damages caused by the use of check valves on unit will not be covered by warranty.

Do not connect booster heater directly to a boiler or furnace coil or any other uncontrolled temperature source. The booster heater thermostat could be damaged causing unit to overheat.

Do not connect an expansion tank of any type to booster heater water lines.

CAUTION

Hatco requires that two temperature/pressure gauges (Hatco P/N 03.01.003.00) be installed to ensure proper operation. Install one in the supply line before the pressure reducing valve and one in the outlet line as close to the booster heater as possible. This provides a visual check of the water temperature and pressure before and after the water heater.

If water supply pressure to the booster inlet is over 20 psi (138 kPa) during flow, install pressure reducing valve with built-in bypass (Hatco P/N 03.02.004.00) for proper operation of dish machine rinse nozzles.

NOTE: The pressure reducing valve must be the type equipped with a high pressure bypass, as supplied by Hatco.

DO NOT turn on power to the booster heater until tank has been filled with water and all air has been vented through the dish machine rinse nozzles. Heating elements will burn out in seconds if operated when not immersed in water.

NOTICE

Always drain booster heater with power to the unit off or element burnout could occur.

Use dielectric couplings when connecting dissimilar metals, such as galvanized to copper. This will prevent electrolysis or premature plumbing damage.

Do not turn or adjust outlet water connection on all Large Compact Series units (C-24 to C-57).

Do not turn or adjust inlet water connection on Compact Series Booster Heaters or internal water flow will change.

Do not back out or loosen any pipe fittings or leaks may occur.

Do not lay unit on the side with the control panel. Damage to the unit could occur.

Incoming water in excess of 3 grains of hardness per gallon (GPG) (0.75 grains of hardness per liter [GPL]) must be treated and softened before being supplied to booster heater(s). Water containing over 3 GPG (0.75 GPL) will decrease efficiency, increase energy use, and reduce the operating life of the unit through increased lime build-up. Product failure caused by liming or sediment buildup is not covered under warranty.

Do not use deionized water. Deionized water will shorten the life of water reservoir and heating element.

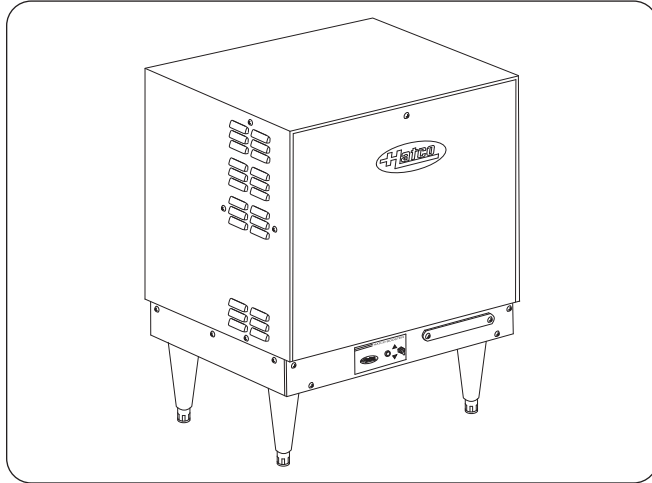
Units are voltage-specific. Refer to specification label for electrical requirements before beginning installation. Connecting unit to incorrect power supply will void product warranty and may damage unit.

All Models

Hatco Electric Water Booster Heaters are available in three models: Imperial, Compact, and Mini-Compact. All standard models include a booster heater with low-water cut-off system, temperature/pressure relief valve, pressure reducing valve with built-in high pressure bypass, two temperature/pressure gauges and a high temperature limit safety switch.

Imperial Models “S” Series

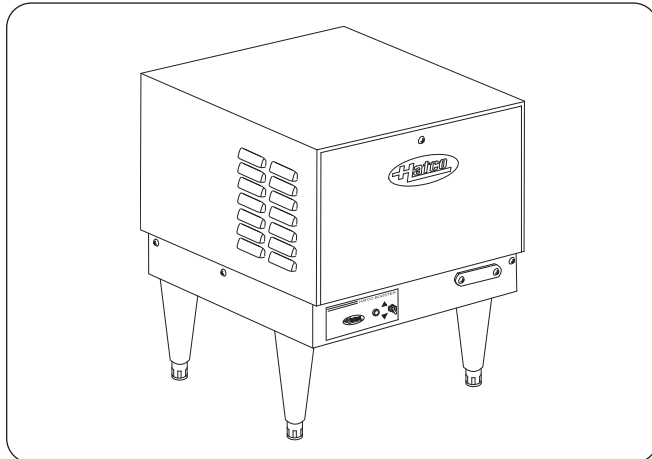
Hatco Imperial models feature a Castone® tank with a 10 year limited warranty, a Power ON/OFF (I/O) switch, an indicator light and 6" (152 mm) legs. Imperial units have a capacity of 16 gallons (61 liters) and provide up to 573 gallons per hour (gph) (2169 liters per hour [lph]) of sanitizing rinse water based on a 40°F (22°C) temperature rise.



Imperial Model

Compact Models “C” Series

Hatco Compact models feature a Castone® tank with a 10 year limited warranty, a Power ON/OFF (I/O) switch, an indicator light and either 6" (152 mm) legs or slide mounting brackets for mounting under a dish table. Compact units have a capacity of 6 gallons (23 liters) and provide up to 573 gph (2169 lph) of sanitizing rinse water based on a 40°F (22°C) temperature rise.

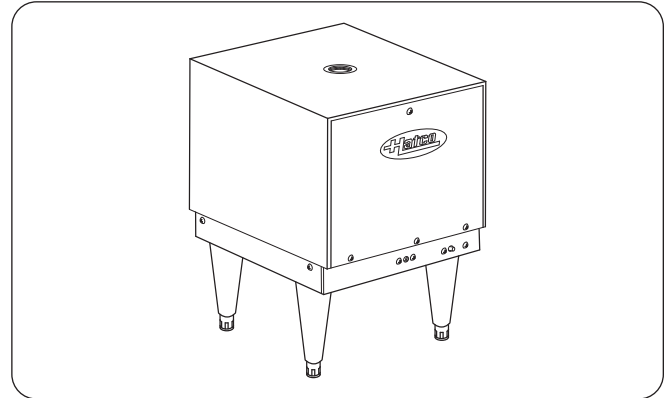


Compact Model

Mini-Compact Models “MC” Series

Hatco Mini-Compact models feature a stainless steel tank and 6" (152 mm) legs. Mini-Compact units have a capacity of 3.2 gallons (12 liters) and provide up to 172 gph (651 lph) of sanitizing rinse water based on a 40°F (22°C) temperature rise. Ideal for either hot water sanitizing or point-of-use hot water dispensing.

NOTE: Mini-Compact models can be configured with an optional Power ON/OFF (I/O) switch.



Mini-Compact Model

SPECIFICATIONS

Circuit Breaker and Fused Disconnect Switch Sizes — 4 to 12 kW

kW	Voltage	Phase	Amp Draw			Breaker or Fuse Size	Copper Wire Size	Conduit Size
			L1	L2	L3			
4	208	1	19	19	--	30	10	1/2" (13 mm)
	240	1	17	17	--	30	10	1/2" (13 mm)
	480	1	8	8	--	15	14	1/2" (13 mm)
5	208	1	24	24	--	30	10	1/2" (13 mm)
	240	1	21	21	--	30	10	1/2" (13 mm)
	480	1	10	10	--	15	14	1/2" (13 mm)
6	208	1	29	29	--	40	8	1/2" (13 mm)
	208	3	14	25	14	40	8	1/2" (13 mm)
	240	1	25	25	--	40	8	1/2" (13 mm)
	240	3	13	22	13	30	10	1/2" (13 mm)
	380	3	9.2	9.2	9.2	15	14	1/2" (13 mm)
	480	3	6	11	6	15	14	1/2" (13 mm)
	600	3	5.7	5.7	5.7	15	14	1/2" (13 mm)
7	208	1	34	34	--	50	8	1/2" (13 mm)
	208	3	17	29	17	40	8	3/4" (19 mm)
	240	1	29	29	--	40	8	1/2" (13 mm)
	240	3	15	25	15	40	8	1/2" (13 mm)
	380	3	11.4	11.4	11.4	15	14	1/2" (13 mm)
	480	3	7	13	7	20	12	1/2" (13 mm)
	600	3	6.7	6.7	6.7	15	14	1/2" (13 mm)
9	208	1	43	43	--	60	6	1/2" (13 mm)
	208	3	22	38	22	50	8	1/2" (13 mm)
	240	1	38	38	--	50	8	1/2" (13 mm)
	240	3	19	33	19	50	8	1/2" (13 mm)
	380	3	13.3	13.3	13.3	20	12	1/2" (13 mm)
	480	3	9	16.3	9	30	12	1/2" (13 mm)
	600	3	8.7	8.7	8.7	15	14	1/2" (13 mm)
9.9	208	1	47.5	47.5	--	60	6	1/2" (13 mm)
	208	3	27.5	27.5	27.5	40	8	1/2" (13 mm)
10.4	208	3	28.8	28.8	28.8	40	8	1/2" (13 mm)
10.5	208	1	51	51	--	70	4	3/4" (19 mm)
	208	3	29	29	29	40	8	1/2" (13 mm)
	240	1	44	44	--	60	6	1/2" (13 mm)
	240	3	25.3	25.3	25.3	40	8	1/2" (13 mm)
	480	3	12.6	12.6	12.6	20	12	1/2" (13 mm)
	600	3	10	10	10	15	14	1/2" (13 mm)
11.4	240	1	47.5	47.5	--	60	6	1/2" (13 mm)
	240	3	27.5	27.5	27.5	40	8	1/2" (13 mm)
	480	3	13.7	13.7	13.7	20	12	1/2" (13 mm)
12	208	1	58	58	--	90	3	1" (25 mm)
	208	3	33	33	33	50	8	1/2" (13 mm)
	240	1	50	50	--	70	4	3/4" (19 mm)
	240	3	29	29	29	40	8	1/2" (13 mm)
	380	3	19.1	19.1	19.1	30	10	1/2" (13 mm)
	480	3	14.5	14.5	14.5	20	12	1/2" (13 mm)
	600	3	11.6	11.6	11.6	15	14	1/2" (13 mm)

The shaded area contains electrical information for **International models only**.

NOTE: 250 kcmil maximum wire size for terminal block.

Circuit Breaker and Fused Disconnect Switch Sizes — 13.5 to 30 kW

kW	Volts	Phase	Amp Draw			Breaker or Fuse Size	Copper Wire Size	Conduit Size
			L1	L2	L3			
13.5	208	1	65	65	--	90	3	1" (25 mm)
	208	1	38	38	38	50	8	1/2" (13 mm)
	240	1	56.3	56.3	--	90	3	1" (25 mm)
	240	1	33	33	33	50	8	1/2" (13 mm)
	480	1	16.3	16.3	16.3	30	10	1/2" (13 mm)
	600	1	13	13	13	20	12	1/2" (13 mm)
15	208	1	72	72	--	90	3	1" (25 mm)
	208	3	41.7	41.7	41.7	60	6	3/4" (19 mm)
	240	1	62.5	62.5	--	90	3	1" (25 mm)
	240	3	36.1	36.1	36.1	50	8	1/2" (13 mm)
	380	3	23.0	23.0	23.0	30	10	1/2" (13 mm)
	480	3	18.1	18.1	18.1	30	10	1/2" (13 mm)
	600	3	14.5	14.5	14.5	20	12	1/2" (13 mm)
17.25	208	3	47.9	47.9	47.9	60	6	3/4" (19 mm)
18	208	1	86.5	86.5	--	125	1	1-1/4" (32 mm)
	240	1	75	75	--	100	3	1" (25 mm)
	240	3	43.4	43.4	43.4	60	6	3/4" (19 mm)
	380	3	27.3	27.3	27.3	40	8	1/2" (13 mm)
	480	3	21.7	21.7	21.7	30	10	1/2" (13 mm)
	600	3	17	17	17	30	10	1/2" (13 mm)
24	208	1	115.4	115.4	--	150	1/0	1-1/4" (32 mm)
	208	3	66.7	66.7	66.7	90	3	1" (25 mm)
	240	1	100	100	--	125	1	1-1/4" (32 mm)
	240	3	57.8	57.8	57.8	90	3	1-1/4" (32 mm)
	380	3	38.0	38.0	38.0	50	8	1/2" (13 mm)
	480	3	29.9	29.9	29.9	40	8	1/2" (13 mm)
	600	3	23	23	23	30	10	1/2" (13 mm)
27	208	1	129.8	129.8	--	175	2/0	1-1/4" (32 mm)
	208	3	75	75	75	100	3	1" (25 mm)
	240	1	112.5	112.5	--	150	1/0	1-1/4" (32 mm)
	240	3	65	65	65	90	3	1" (25 mm)
	380	3	38.1	38.1	38.1	50	8	1/2" (13 mm)
	480	3	32.5	32.5	32.5	50	8	1/2" (13 mm)
	600	3	26	26	26	40	8	1/2" (13 mm)
30	208	1	144	144	--	200	3/0	1-1/2" (38 mm)
	208	3	83.3	83.3	83.3	125	1	1-1/4" (32 mm)
	240	1	125	125	--	175	2/0	1-1/2" (38 mm)
	240	3	72.3	72.3	72.3	100	3	1" (25 mm)
	380	3	45.7	45.7	45.7	60	6	3/4" (19 mm)
	480	3	36	36	36	50	8	1/2" (13 mm)
	600	3	28.9	28.9	28.9	40	8	1/2" (13 mm)

Wire size is based on THHN wire for branch circuit protection at .91 derate factor. Circuit breakers and fused disconnects are to be mounted remote and wired by contractor. Sizes are based on the 2002 NEC table 310-16. Conduit size based on conductors plus ground wire sizing per Table C1 from Appendix C.

Only 6, 7 and 9 kW models can be field converted to single or three phase (open delta on 3 phase). Check wiring diagram supplied with the unit when converting the phase of the unit. Larger branch circuit required than for balanced 3 phase of equal kW. Balanced 3 phase available, consult factory.

SPECIFICATIONS

Circuit Breaker and Fused Disconnect Switch Sizes — 36 to 57 kW

kW	Volts	Phase	Amp Draw			Breaker or Fuse Size	Copper Wire Size	Conduit Size
			L1	L2	L3			
36	208	1	173	173	--	225	4/0	1-1/2" (38 mm)
	208	3	100	100	100	125	1	1-1/4" (32 mm)
	240	1	150	150	--	200	3/0	1-1/2" (38 mm)
	240	3	86.7	86.7	86.7	125	1	1-1/4" (32 mm)
	380	3	54.7	54.7	54.7	70	4	1" (25 mm)
	480	3	43.3	43.3	43.3	60	6	3/4" (19 mm)
	600	3	34.7	34.7	34.7	50	8	1/2" (13 mm)
39	208	1	187.5	187.5	--	250	250 kcmil	2" (51 mm)
	208	3	108	108	108	150	1/0	1-1/4" (32 mm)
	240	1	163.5	163.5	--	225	4/0	2" (51 mm)
	240	3	94	94	94	125	1	1-1/4" (32 mm)
	380	3	59.3	59.3	59.3	90	3	1" (25 mm)
	480	3	47	47	47	60	6	3/4" (19 mm)
	600	3	37.6	37.6	37.6	50	8	1/2" (13 mm)
40	208	3	61.6	61.6	61.6	90	3	1" (25 mm)
40.5	208	3	112.5	112.5	112.5	150	1/0	1-1/4" (32 mm)
	240	3	97.5	97.5	97.5	125	1	1-1/4" (32 mm)
	480	3	48.8	48.8	48.8	70	4	1" (25 mm)
	600	3	39	39	39	50	8	3/4" (19 mm)
45	208	3	125	125	125	175	2/0	1-1/2" (38 mm)
	240	1	188	188	--	250	250 kcmil	2" (51 mm)
	240	3	108	108	108	150	1/0	1-1/4" (32 mm)
	380	3	68.6	68.6	68.6	90	3	1" (25 mm)
	480	3	54	54	54	70	4	1" (25 mm)
	600	3	43.4	43.4	43.4	60	6	3/4" (19 mm)
54	208	3	150	150	150	200	3/0	2" (51 mm)
	240	3	130	130	130	175	2/0	1-1/2" (38 mm)
	380	3	82	82	82	125	1	1-1/4" (32 mm)
	480	3	65	65	65	90	3	1" (25 mm)
	600	3	52	52	52	70	4	1" (25 mm)
57	208	3	158.4	158.4	158.4	200	3/0	2" (51 mm)
	240	3	137.3	137.3	137.3	175	2/0	1-1/2" (38 mm)
	380	3	86.7	86.7	86.7	125	1	1-1/4" (32 mm)
	480	3	68.6	68.6	68.6	90	3	1" (25 mm)
	600	3	54.9	54.9	54.9	70	4	1" (25 mm)

The shaded area contains electrical information for **International models only**.

Wire size is based on THHN wire for branch circuit protection at .91 derate factor. Circuit breakers and fused disconnects are to be mounted remote and wired by contractor. Sizes are based on the 2002 NEC table 310-16. Conduit size based on conductors plus ground wire sizing per Table C1 from Appendix C.

NOTE: 250 kcmil maximum wire size for terminal block.



WARNING

ELECTRIC SHOCK HAZARD: Consult a licensed electrical contractor for proper electrical installation conforming to local electrical codes and the National Electrical Code (N.E.C.).

Sizing Chart for Low-Temp Dish Machines

BOOSTERS RATED AT 30°F (16°C) RISE		Electric	
Dish Machine	Model Number	Compact Booster	Imperial Booster
American Dish Service	AH, AH-3D, AH-3D-S, AHC, AHC-3D, AHC-3D-S, ET-A, ET-AF, ET-AH, ET-A-M, ET-AH-M, ET-A-3, ET-AH-3, L-90-3D, L-90-3D-K, L-90-3D-K-S, L-90-3D-S, L-90-3DC, L-90-3DC-K, L-90-3DC-K-S, L-90-3DC-S, L-90-3DW, L-90-3DW-K, L-90-3DW-K-S, L-90-3DW-S, L-90-3DWC, L-90-3DWC-K, L-90-3DWC-K-S, L-90-3DWC-S, WH, WHC	C-4	S-6
	A-3D, A-3D-S, A, AC, AC-3D, AC-3D-S, AH-B, ET-AF-3, ET-AF-M, HT-25, L-60-3D, L-60-3D-K, L-60-3D-K-S, L-60-3D-S, L-60-3DC, L-60-3DC-K, L-60-3DC-K-S, L-60-3DC-S, L-60-3DW, L-60-3DW-K, L-60-3DW-K-S, L-60-3DW-S, L-60-3DWC, L-60-3DWC-K, L-60-3DWC-K-S, L-60-3DWC-S, L-72-3D, L-72-3D-K, L-72-3D-K-S, L-72-3D-S, L-72-3DC, L-72-3DC-K, L-72-3DC-K-S, L-72-3DC-S, L-72-3DW, L-72-3DW-K, L-72-3DW-K-S, L-72-3DWC-S, L-72-3DWC, L-72-3DWC-K, L-72-3DWC-K-S, L-72-3DWC-S, W, WC	C-5	S-6
	A-B, AD-25, SS-25, 5-AH, 5-AHS	C-6	S-6
	AF, AF-3D, AF-3D-S, AF-B, AFC, AFC-3D, AFC-3D-S, AFW, AFWC, 5, 5-S	C-7	S-7
	ADC-44, ADC-66, 5-AG, 5-AGS, 5-CD-LF, 5-CD-RF	C-9	S-9
Blakeslee	U21-C	C-4	S-6
	D-8-LT	C-6	S-6
	DD-8-LT, R-CC64-LT, R-EE-LT	C-12	S-12
	Series XF-EE-LT, XF-PEE-LT, XF-LL-LT, XF-PLL-LT, XF-MM-LT, XF-PMM-LT, XF-EEE-LT, XF-LLL-LT, XF-MMM-LT	C-13	S-13
	Series R-L-LT, R-PL-LT, R-M-LT, R-PM-LT, F-L-LT, F-PL-LT, F-M-LT, F-PM-LT (single tank)	C-36	S-36
	Series "R" & "F"-CC-LT, -EE-LT, -LL-LT, -MM-LT, -LLL-LT, -MMM-LT, -PCC-LT, -PEE-LT, -PLL-LT, -PMM-LT (multi-tank)	C-24	S-24
	Series XF-L-LT, XF-PL-LT, XF-M-LT, XF-PM-LT (single tank)	C-54	S-54
	Series XF-PEE-LT, XF-PLL-LT, XF-PMM-LT, XF-EEE-LT, XF-LLL-LT, XF-MMM-LT (multi-tank)	C-36	S-36
	FA (Flight-A-Round) and RA (Rack-A-Round) use comparable "F" listing.		
Champion	ULD, ULF	C-6	S-6
	DLF	C-13	S-13
	KL44, KL66	C-36	S-36
CMA Dish Machines	A-1, AH-1, C-1, VAC-1, A-3, AH-3, C-3, L-1C, VAC-3, VAC-4, VAC-5, L-1X	C-4	S-6
	A-2, AH-1, AH-2, AH-3, B-3, C-1, C-2, C-3, EVA-1, EVA-2, EVA-3, EVA-4, EVA-5, VAC-2	C-6	S-6
	B-1	C-7	S-7
	B-2	C-9	S-9
	CMA-44L with tank heater, CMA-66L	C-24	S-24
	CVA-1, CVA-2, CVA-3, CVA-4	C-6	S-6
	CVA-5	C-7	S-7
Hobart	LX-18C, LX-30C, LX-40C, WM-5C, SR24C	C-4	S-6
	LT-1	C-6	S-6
	AM-14, AM-14C	C-7	S-7
	C44A, CRS66A, CPW80A	C-27	S-27
	FT-800	C-30	S-30
Jackson	Conserver 24LT, 200LT, ES1000, (Ecolab/Jackson)	C-4	S-6
	Conserver 1, Conserver XL, ES2000 (Ecolab/Jackson)	C-9	S-9
	Conserver 2, Conserver XL2, ES4000 (Ecolab/Jackson)	C-15	S-15
	AJ-44, AJ-66, AJ-80	C-18	S-18
Knight Equipment LTD.			
	KLE-112-HL	C-5	S-6

SPECIFICATIONS

Booster Heater Sizing Chart

Dish Machine	Model Number	ELECTRIC COMPACT BOOSTER Temperature Rise		ELECTRIC IMPERIAL BOOSTER Temperature Rise	
		40°F (22°C)	70°F (39°C)	40°F (22°C)	70°F (39°C)
Adamation	CSL-1390, CA-2, CA-3, CA-4, SLAP 44	C-39	(2)C-36	S-39	(2)S-36
	CA, CA-1	C-54	(2)C-45	S-54	(2)S-45
Alvey	FLC-10, SL-2S	---	---	S-6	S-9
	FLC-12, CL-1, CL-1 Turntable, SA-5A	---	---	S-7	S-12
	FL-2S	---	---	S-9	S-13
	KS-70, KS70M SB	---	---	S-9	S-15
	SL-2D	---	---	S-13	S-18
	FLC-36	---	---	S-15	S-27
	KS-88	---	---	S-18	S-30
	KS-70-N, KS-88-N	---	---	S-39	---
American Dish Service	HT-25	C-7	C-12	S-7	S-12
	ACD-44, ADC-66	C-12	C-24	S-12	S-24
Blakeslee	UC-21A, UC-21B	C-4	C-4	S-6	S-6
	UC-21	C-6	C-12	S-6	S-12
	D-8	C-9	C-13	S-9	S-13
	D-9	C-12	C-17	S-12	S-17
	Series "R" & "F" -CC, -EE, -LL, -MM, -LLL, -MMM, -PCC, -PEE, -PLL, -PMM (multi-tank) with suffix "LC"	C-13	C-24	S-13	S-24
	Series XF-EE, XF-LL	C-17	C-30	S-17	S-30
	Series XF-LL, XF-PLL, XF-MM, XF-PMM, XF-EEE, XF-LLL, XF-MMM (multi-tank) with suffix "LC"	C-17	C-30	S-17	S-30
	DD-8	C-18	C-30	S-18	S-30
	Series F-E, FA-EE, FA-PEE, FA-LL, FA-PLL, FA-MM, FA-PMM, F-EEE, FA-EEE, FA-LLL, FA-MMM, F-PE	C-30	C-54	S-30	S-54
	Series R-L, R-PL, R-M, R-PM, F-L, F-PL, F-M, F-PM (single tank)	C-36	C-54	S-36	S-54
	Series XF-L, XF-PL, XF-M, XF-PM, (single tank)	(2)C-36	---	(2)S-36	---
	Series R-E, R-PE, XF-PEE, XF-PLL, XF-PMM, XF-EEE, XF-LLL, XF-MMM (multi-tank)	C-45	(2)C-30	S-45	(2)S-30
	FA (Flight-A-Round) and RA (Rack-A-Round) use comparable "F" listing.				
	U-H1, UH-200, UH-200B, U-HB	C-4	C-6	S-6	S-6
	UL-150	C-4	C-7	S-6	S-7
	UH-150, UH-150B, UH-100, UH-100B, DHB-VS	C-5	C-9	S-6	S-9
	D-H1, D-HB	C-6	C-12	S-6	S-12
	D-H1T, D-HBT	C-7	C-12	S-7	S-12
	44 DRWS, 66 DRPWS, 80 DRHDPWS, 70 DRFFPWS	C-9	C-13	S-9	S-13
	PP-28	C-9	C-15	S-9	S-15
	D-H1C, D-H1TC	C-9	C-18	S-9	S-18
Champion	44 DR, 66 DRPW, 80 DRHDFW, 70 DRFFPW	C-12	C-24	S-12	S-24
	66 WSPW, 44-WS, 66-WS, 64, 90FFPW, 100HDPW, 86 PW, 84, 106 PW, 120 HDPW, 110 FFPW	C-13	C-24	S-13	S-24
	UC-CW6-WS	C-24	C-36	S-24	S-36
	US-CW8-WS	C-24	C-39	S-24	S-39
	44, 66 PW, 70FFPW, 80HDPW, 54, 76PW, 80FFPW, 90HDPW	C-24	C-45	S-24	S-45
	40-KB, 40-KB-2-2, 40-KFWB, 40-KPRB, 40KPRB-2-2, 40KPRB-2-3, 60-KB, 60-KB-2-2, 60-KFWB, 60-KFWB-2-2, 60-KPRB, 60-KPRB-2-3, 64KB, 64-KB Corner, 64-KPRB, 64-KPRB Corner, 64 Modular, 86 Modular	C-30	C-54	S-30	S-54
	44-KB, 44-KB Corner, 44-KPRB, 44-KPRB Corner, 54-KB, 54-KB Corner, 54-KPRB, 54-KPRB Corner, 44 Modular, 66 PW Modular, UC** Series 6' Center, UC-C4	C-36	C-57	S-36	S-57
	UC-CW4	C-36	(2)C-36	S-36	(2)S-36
	UC-C	C-45	(2)C-36	S-45	(2)S-36
	UC**CW Series 6' Center	C-45	(2)C-39	S-45	(2)S-40
	W-6-WS	C-45	(2)C-45	S-45	(2)S-40

Booster Heater Sizing Chart (continued)

Dish Machine	Model Number	ELECTRIC COMPACT BOOSTER Temperature Rise		ELECTRIC IMPERIAL BOOSTER Temperature Rise	
		40°F (22°C)	70°F (39°C)	40°F (22°C)	70°F (39°C)
CMA Dish Machines	CMA-180	C-7	C-12	S-7	S-12
	CMA-44H with tank heater, CMA-66H	C-36	C-45	S-36	S-45
Hobart	AM-15F	C-4	C-6	S-6	S-6
	LXiC, LXiGC, LX-18C, LX-30C, LX-40C	C-4	C-7	S-6	S-6
	LX-30, SR24, SR24H	C-4	C-7	S-6	S-7
	LX-18, AM-14F, AM-15, AM-15T	C-5	C-9	S-6	S-9
	WM-5C	C-6	C-9	S-6	S-9
	WM-5 (without sump heater)	C-7	C-12	S-7	S-12
	AM-14T, AM-14TC	C-7	C-12	S-7	S-12
	AM-14, AM-14C	C-9	C-12	S-9	S-12
	AM-12, AM-12C*	C-9	C-12	S-9	S-12
	UW-50	---	---	S-15	S-24
	or Opti-Rinse C44A, CRS-66A, CCS-66A, CPW-80A, C54A, CRS-76A, CCS-76A, CPW-90A, C64A, CRS-86A, CCS-86A, CPW-100A, C-88A, CRS-110A, CCS-110A, CPW-124A	C-15	C-27	S-15	S-27
	C-54A, CRS-76A, CPW-90A, CCS-76A	C-39	(2)C-36	S-30	(2)S-36
	C-44A, CRS-66A, CCS-66A, CPW-80A, C-64A, CRS-86A, CCS-86A, CPW-100A	C-30	C-54	S-30	S-54
	C-88A, CRS-110A, CPW-124A, CCS-110A	C-36	C-54	S-36	S-54
	or Opti-Rinse C44AW, CRS-66AW, CCS-66AW, CPW-80AW	C-9	C-15	S-9	S-15
	C-44AW, CRS-66AW, CPW-80AW, CCS-66AW	C-12	C-24	S-12	S-24
	C-44, CRS-66, CPW-80	C-36	C-54	S-36	S-54
	C-54, CRS-76, CPW-90	C-54	(2)C-39	S-54	(2)S-39
	C-64W, CRS-86W, CPW-100W, C-88W, CRS-110W, CPW-124W, CCS-86W	C-24	C-36	S-24	S-36
	C-64, CRS-86, CPW-100	C-45	(2)C-36	S-45	(2)S-36
	FT800W, FT-900W	C-24	C-39	S-24	S-39
	FT-600, FT-700	C-54	(2)C-39	S-54	(2)S-39
	FT800	C-39	(2)C-39	S-39	(2)S-39
	Opti-Rinse*	C-36	C-57	S-36	S-57
	FT800S, FT-900S	C-39	(2)C-36	S-39	(2)S-36
	UTW-28, UTW-28C	---	---	S-18	S-36
	FRC and FR (Fast Rack Series) use comparable "C" line listing.				
Insinger	GS 302, GS-14	C-4	C-4	S-6	S-6
	45SA-5	C-4	C-7	S-6	S-7
	Commander 18-5C, 18-5CH, CS-5, CS-5C, CS-5CH, CS-5H	C-6	C-12	S-6	S-12
	Commander 18-5, 18-5H, Ensign 40-2	C-6	C-12	S-6	S-12
	Admiral 44-4, 66-4	C-24	C-36	S-24	S-39
	135-20, 185-20, 250-20, 60-20, 85-20, R-106-2	C-24	C-25	S-24	S-45
	Speeder 64, 86-3, Century (all), Super 106-2	C-24	C-45	S-24	S-45
	Trac 878	C-24	C-36	S-24	S-36
	Century 14, Clipper RC-##-RPW-W	C-24	C-39	S-24	S-39
	Clipper (all), R106-2, Super 106-2, Trac 321, Trac 321-2/RPW	C-27	C-45	S-27	S-45
	Defender-(1)	C-30	C-54	S-30	S-54
	Defender	C-36	C-54	S-36	S-54
	Master (all)	C-36	C-57	S-36	S-57
	CA-3	---	---	S-9	S-24
	DA-3	---	---	(2)S-9	(2)S-24
	For outdated models, consult factory for correct booster.				

* Hobart Model AM-12 with serial no. 12-067-357 or below and model AM-12C with serial no. 12-067-537 or below require slightly larger booster than listed. 'C' Models with serial no. 85-1041605 or greater use Opti-Rinse.

Shaded area indicates older models prior to Opti-Rinse.

SPECIFICATIONS

Booster Heater Sizing Chart (continued)

Dish machine	Model Number	ELECTRIC COMPACT BOOSTER Temperature Rise		ELECTRIC IMPERIAL BOOSTER Temperature Rise	
		40°F (22°C)	70°F (39°C)	40°F (22°C)	70°F (39°C)
Jackson	JP-24, JP-24B, JP-24F, JP-24BF	C-4	C-6	S-6	S-6
	24B Series	---	C-4	---	S-6
	10AB, 10APRB	---	C-5	---	S-6
	44CE*, 66 CERPW	C-30	C-54	S-30	S-54
	54CE, 76 CERPW	C-36	(2)C-30	S-36	(2)S-30
	64CE, 86 CERPW	C-27	C-39	S-27	S-39
	100	C-12	C-24	S-12	S-24
	100B, 100PRB, 150B, 150PRB	---	C-9	---	S-9
	150	C-12	C-18	S-12	S-18
	200	C-7	C-12	S-7	S-12
	200B	---	C-6	---	S-6
	Tempstar, Tempstar SDS, Tempstar HH	C-6	C-12	S-6	S-12
	TS-44, TS-66	C-24	C-36	S-24	S-36
	AJ-44, AJ-66, AJ-80, WH-44, ES-4400,				
	ES-6600 (Ecolab/Jackson)	C-24	C-45	S-24	S-45
	AJ-54, AJ-76, AJ-90	C-36	(2)C-36	S-36	(2)S-36
	AJ-64, AJ-86, AJ-100	C-24	C-39	S-24	S-39
*Model #44CE w/SN1999 or below requires larger booster than listed.					
Knight Equipment LTD.	KLE-112-HL	C-7	C-12	S-7	S-12
Meiko	K-44, K-66, K-80	C-24	C-36	S-24	S-36
	K-54, K-76, K-90, K-64, K-86, K-100	C-24	C-45	S-24	S-45
Metalwash/Intedge	FW4	C-12	C-18	S-12	S-18
	RS-30A, RS-28L	---	---	S-15	S-24
	RT-74, RT-60, RT-42B, RT-42BC	---	---	S-27	S-40
	RS-2R	---	---	S-30	S-45

Booster Heater Sizing Chart (continued)

Dish machine	Model Number	ELECTRIC COMPACT BOOSTER Temperature Rise		ELECTRIC IMPERIAL BOOSTER Temperature Rise	
		40°F (22°C)	70°F (39°C)	40°F (22°C)	70°F (39°C)
Stero	SCT-44-10-LW, SCT-44-LW, SCT-66S-LW, SCT-76S-LW, SCT-76SC-LW, SCT-90S-LW	.C-12	.C-24	.S-12	.S-24
	SC-1-2-4-LW, SC-1-6-4-LW, SC-2-4-LW, SC-5-2-4-LW, SC-5-6-4-LW, SC-6-4-LW	.C-24	.C-45	.S-24	.S-45
	SCT-64, SCT-86S, SCT-94S, SCT-94SC	.C-24	.C-39	.S-24	.S-39
	SCT-108S, SCT-108SC, SCT-76, SCT-94SM	.C-27	.C-54	.S-27	.S-54
	SC-6-4, SCT-44, SCT-44-10, SCT-66S, SCT-76S, SCT-76SC, SCT-90S	.C-30	.C-54	.S-30	.S-54
	SCT-120S, SCT-120SC, SCT-120SM, SCT-150SM	.C-36	.C-57	.S-36	.S-57
	STW-110, SC-1-2-7-4, SC-1-6-3-4, SC-1-6-7-4, SC-2-7-4, SC-5-2-7-4, SC-5-6-3-4, SC-5-6-7-4, SC-6-3-4, SC-6-7-4	.C-39	(2)C-36	.S-39	(2)S-39
	SC-1-2-4, SC-1-6-4, SC-2-4, SC-5-2-4, SC-5-6-4	.C-45	(2)C-36	.S-45	(2)S-45
	SCT-44-10-SC-1-3-4, SCT-44-10-3-4, SCT-44-SC-1-3-4, SCT-44-SC-3-4, SCT-54-SC-1-3-4, SCT-54-SC-3-4, SCT-76S-SC-3-4	.C-45	(2)C-36	.S-40	(2)S-36
	STPC (Four tank)	.C-24	.C-39	.S-24	.S-39
	STPCW (Four tank)	.C-24	.C-45	.S-24	.S-40
	STPC	.C-27	.C-54	.S-27	.S-54
	STPCW	.C-36	(2)C-30	.S-36	(2)S-30
	SCBT	.C-45	(2)C-36	.S-40	(2)S-36
	SF-1RA, SC20-1	.C-7	.C-12	.S-7	.S-12
	SF-2RA, SF-2DRA, SD-2RA, SDRA, SDRA-PACK	.C-12	.C-18	.S-12	.S-18
	SCT-54, SCT-76SM	.C-36	.C-57	.S-36	.S-57
	SCT-76, SCT-80, SCT-94, SCT-108, SCT-120	.C-45	.C-57	.S-45	.S-57
	U-31-A, U-31-AC	---	---	.S-18	.S-36
	U-31-A2	.C-45	(2)C-36	.S-45	(2)S-36
	STBUW-14	.C-57	(2)C-54	.S-57	(2)S-54
	SC-2-3-4, SC-5-2-3-4	.C-30	(2)C-27	.S-30	(2)S-27
	SC20-2	.C-12	.C-24	.S-12	.S-24
	SC-2-8, SC-2-9, SC-1-2-8, SC-5-6-8, SC-6-8, SC-6-9, SC-1-6-8, SC-5-6-9, SC-5-2-9, SC-1-6-9, SC-5-2-8	.C-18	.C-36	.S-18	.S-36

This selector chart is based on 40°F (22°C) and 70°F (39°C) temperature rises, 20 psi flow pressure, and minimum rinse cycle timer setting in NSF listing.

All booster heaters are rated at 100% of the capacity of the dish machines as recommended by the National Sanitation Foundation. Where make-up water for wash tank is provided from final rinse supply, chart recommendations are based upon this additional demand (not over 2 GPM) as required by NSF.

NOTE: All sizings shown are that of the dish machine manufacturers. Hatco Corporation is not responsible for incorrect sizing applications.

SPECIFICATIONS

Capacity — Imperial “S” Series

Model	kW	40°F (22°C) Rise	70°F (39°C) Rise	Storage Capacity	Shipping Weight
S-6	6	60 gph (227 lph)	34 gph (129 lph)	16 gallons (61 liters)	200 lbs. (91 kg)
S-7	7	70 gph (265 lph)	40 gph (151 lph)	16 gallons (61 liters)	200 lbs. (91 kg)
S-9	9	90 gph (341 lph)	52 gph (197 lph)	16 gallons (61 liters)	200 lbs. (91 kg)
S-12	12	120 gph (454 lph)	69 gph (261 lph)	16 gallons (61 liters)	200 lbs. (91 kg)
S-13	13.5	135 gph (511 lph)	77 gph (292 lph)	16 gallons (61 liters)	200 lbs. (91 kg)
S-15	15	151 gph (572 lph)	86 gph (326 lph)	16 gallons (61 liters)	200 lbs. (91 kg)
S-17	17.2	173 gph (655 lph)	99 gph (375 lph)	16 gallons (61 liters)	200 lbs. (91 kg)
S-18	18	181 gph (685 lph)	103 gph (390 lph)	16 gallons (61 liters)	200 lbs. (91 kg)
S-24	24	241 gph (912 lph)	138 gph (522 lph)	16 gallons (61 liters)	214 lbs. (97 kg)
S-27	27	271 gph (1026 lph)	155 gph (587 lph)	16 gallons (61 liters)	214 lbs. (97 kg)
S-30	30	301 gph (1139 lph)	172 gph (651 lph)	16 gallons (61 liters)	214 lbs. (97 kg)
S-36	36	361 gph (1367 lph)	206 gph (780 lph)	16 gallons (61 liters)	214 lbs. (97 kg)
S-39	39	391 gph (1480 lph)	224 gph (848 lph)	16 gallons (61 liters)	214 lbs. (97 kg)
S-40	40.5	407 gph (1541 lph)	232 gph (878 lph)	16 gallons (61 liters)	224 lbs. (102 kg)
S-45	45	452 gph (1711 lph)	258 gph (977 lph)	16 gallons (61 liters)	224 lbs. (102 kg)
S-54	54	542 gph (2052 lph)	310 gph (1174 lph)	16 gallons (61 liters)	224 lbs. (102 kg)
S-57	57	573 gph (2169 lph)	326 gph (1234 lph)	16 gallons (61 liters)	224 lbs. (102 kg)

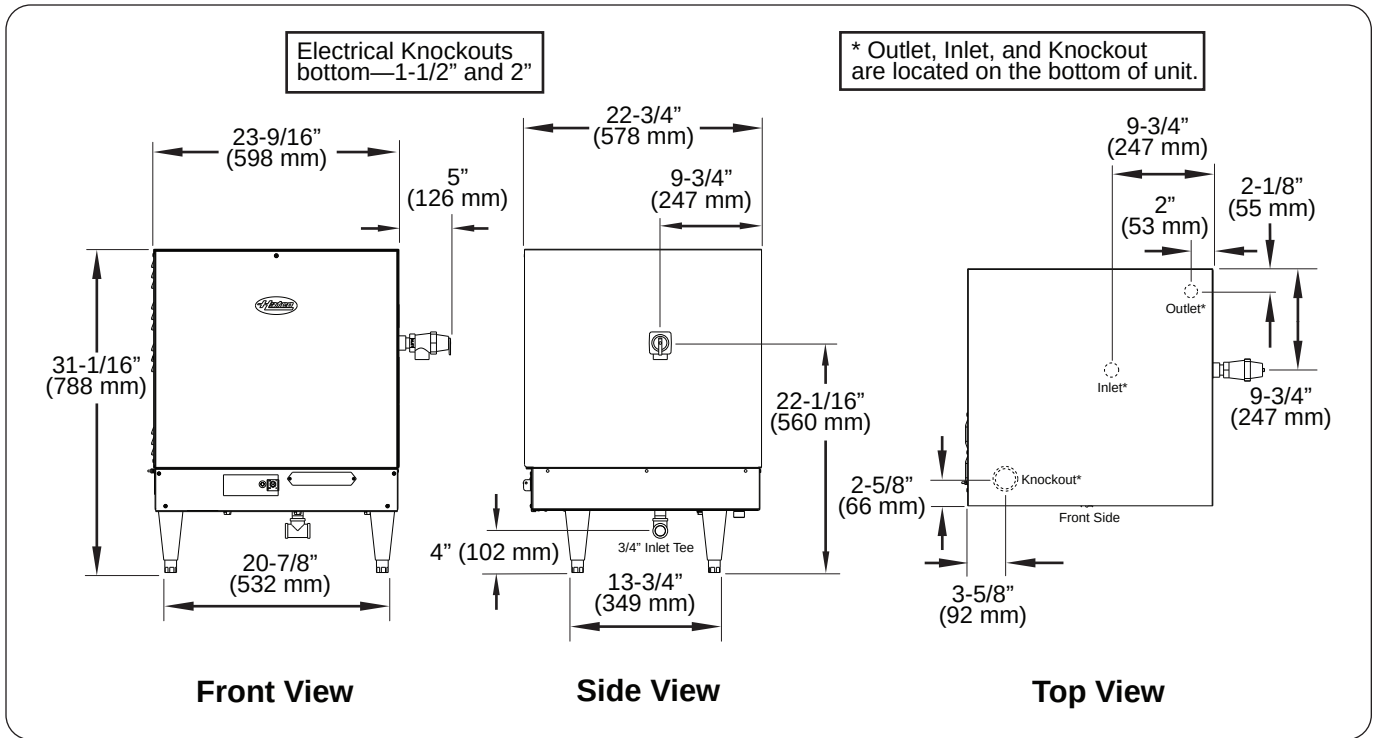
Capacity — Compact “C” Series

Model	kW	40°F (22°C) Rise	70°F (39°C) Rise	Storage Capacity	Shipping Weight
C-4	4	40 gph (151 lph)	23 gph (87 lph)	6 gallons (23 liters)	105 lbs. (48 kg)
C-5	5	50 gph (189 lph)	29 gph (110 lph)	6 gallons (23 liters)	105 lbs. (48 kg)
C-6	6	60 gph (227 lph)	34 gph (129 lph)	6 gallons (23 liters)	118 lbs. (54 kg)
C-7	7	70 gph (265 lph)	40 gph (151 lph)	6 gallons (23 liters)	118 lbs. (54 kg)
C-9	9	90 gph (341 lph)	52 gph (197 lph)	6 gallons (23 liters)	118 lbs. (54 kg)
C-12	12	120 gph (454 lph)	69 gph (261 lph)	6 gallons (23 liters)	120 lbs. (54 kg)
C-13	13	135 gph (511 lph)	77 gph (292 lph)	6 gallons (23 liters)	120 lbs. (54 kg)
C-15	15	151 gph (572 lph)	86 gph (326 lph)	6 gallons (23 liters)	120 lbs. (54 kg)
C-17	17	173 gph (655 lph)	99 gph (375 lph)	6 gallons (23 liters)	120 lbs. (54 kg)
C-18	18	181 gph (685 lph)	103 gph (390 lph)	6 gallons (23 liters)	120 lbs. (54 kg)
C-24	24	241 gph (912 lph)	138 gph (522 lph)	6 gallons (23 liters)	142 lbs. (64 kg)
C-27	27	271 gph (1026 lph)	155 gph (587 lph)	6 gallons (23 liters)	142 lbs. (64 kg)
C-30	30	301 gph (1139 lph)	172 gph (651 lph)	6 gallons (23 liters)	142 lbs. (64 kg)
C-36	36	361 gph (1367 lph)	206 gph (780 lph)	6 gallons (23 liters)	142 lbs. (64 kg)
C-39	39	391 gph (1480 lph)	224 gph (848 lph)	6 gallons (23 liters)	142 lbs. (64 kg)
C-45	45	452 gph (1711 lph)	258 gph (977 lph)	6 gallons (23 liters)	142 lbs. (64 kg)
C-54	54	542 gph (2052 lph)	310 gph (1174 lph)	6 gallons (23 liters)	142 lbs. (64 kg)
C-57	57	573 gph (2169 lph)	326 gph (1234 lph)	6 gallons (23 liters)	142 lbs. (64 kg)

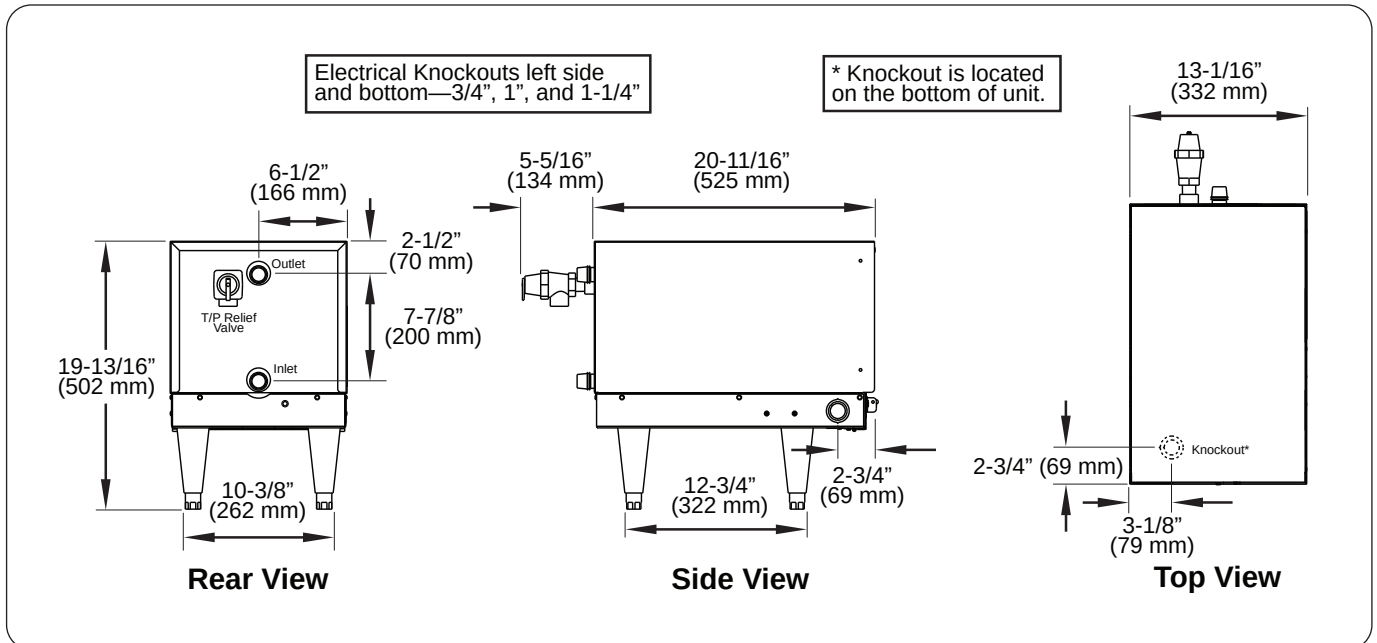
Capacity — Mini-Compact “MC” Series

Model	kW	40°F (22°C) Rise	70°F (39°C) Rise	Storage Capacity	Shipping Weight
MC-10	9.9	99 gph (375 lph)	57 gph (216 lph)	3.2 gallons (12 liters)	48 lbs. (22 kg)
MC-10.5	10.4	104 gph (393 lph)	60 gph (227 lph)	3.2 gallons (12 liters)	48 lbs. (22 kg)
MC-11	11.4	114 gph (432 lph)	65 gph (248 lph)	3.2 gallons (12 liters)	48 lbs. (22 kg)
MC-15	15	150 gph (568 lph)	86 gph (326 lph)	3.2 gallons (12 liters)	48 lbs. (22 kg)
MC-17	17.25	173 gph (655 lph)	99 gph (375 lph)	3.2 gallons (12 liters)	48 lbs. (22 kg)

Dimensions — Imperial “S” Series

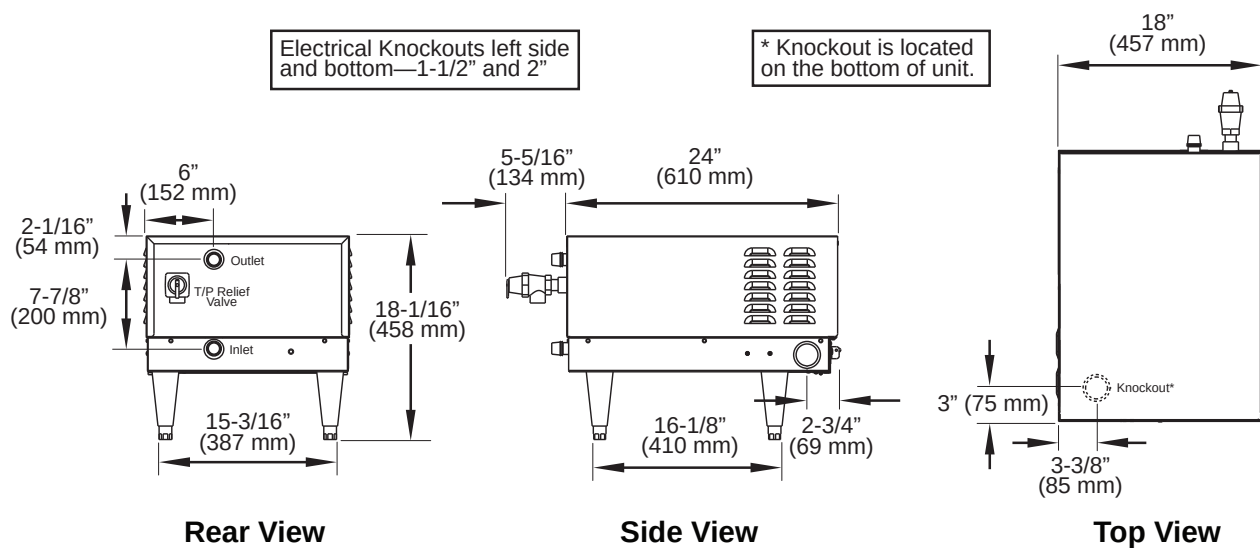


Dimensions — Compact “C” Series 4 to 18 kW

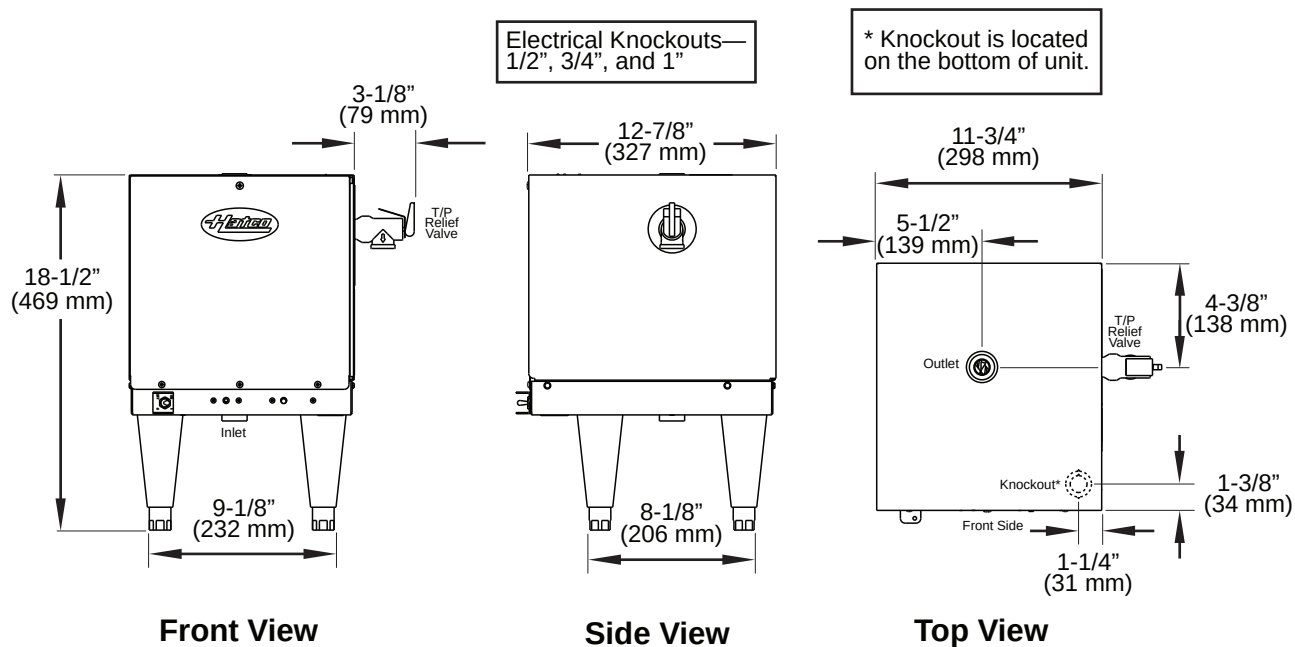


SPECIFICATIONS

Dimensions — Compact “C” Series 24 to 57 kW



Dimensions — Mini-Compact “MC” Series



General

Booster Heaters are shipped with most components pre-assembled. Care should be taken when unpacking shipping carton to avoid damage to unit and components enclosed. Components are shipped with the heater unit.

⚠ WARNING

ELECTRIC SHOCK HAZARD:

- Unit must be installed by qualified, trained installers. Installation must conform to all local electrical and plumbing codes. Installation by unqualified personnel will void the unit warranty and may lead to electric shock or burn, as well as damage to unit and/or its surroundings. Check with local plumbing and electrical inspectors for proper procedures and codes.
- Unit is not weatherproof. Locate unit indoors where ambient air temperature is a minimum of 70°F (21°C).
- Do not place aftermarket covers on or over booster heater. Doing so can cause temperature and moisture build-up resulting in premature failure and electrical shock.

EXPLOSION HAZARD: Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

Install booster water heater as close as possible to a commercial dish machine. Employ re-circulation if distance between water heater and dish machine exceeds National Sanitation Foundation (NSF) specifications of five (5) linear feet (1524 mm).

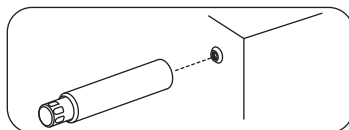
Install booster water heater in a horizontal position with the base parallel to the floor and the inlet connection at the lowest point. Improper installation could create an unsafe condition.

1. Remove the unit from the box.

NOTE: To prevent delay in obtaining warranty coverage, complete online warranty registration. See the IMPORTANT OWNER INFORMATION section for details.

2. Remove tape and protective packaging from all surfaces of unit.

3. If unit is equipped with legs, carefully lay unit on its side and install the four legs.



NOTICE

Do not lay unit on the side with the control panel. Damage to the unit could occur.

NOTE: If unit is not level, use an adjustable wrench to adjust the foot of each leg until unit is level. Each leg is adjustable from 6" (152 mm) to 7" (178 mm).

4. Place the unit in the appropriate location.

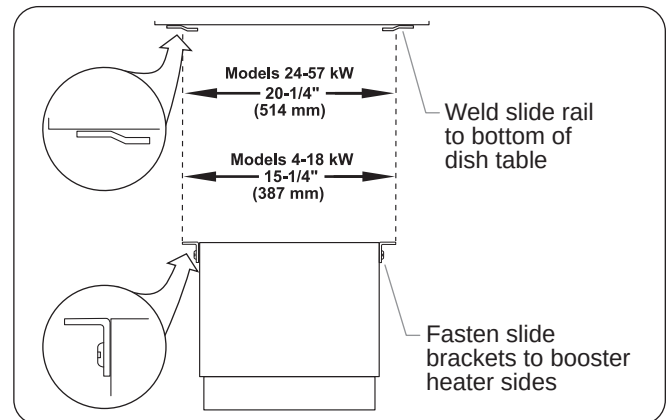
- The location must have a solid foundation along with being clean and dry.
- Adequate front clearance is required to allow for accessibility to the control compartment.
- Location must have adequate clearance to allow for inspection, testing or replacement of pressure and/or temperature relief valve.
- Install the booster heater as close as possible to the commercial dish machine for efficient operation.

⚠ WARNING

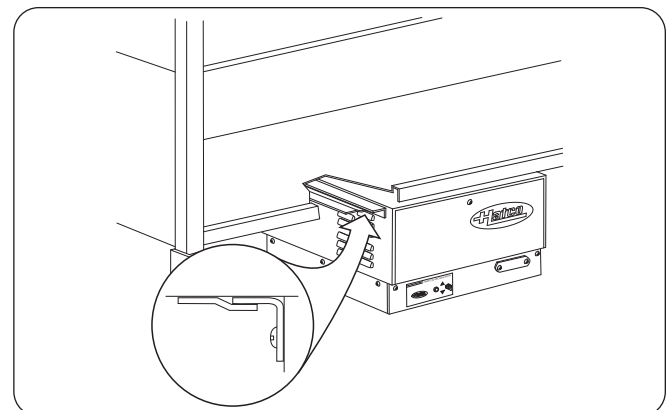
Make sure the dishtable is strong enough to support the weight of the booster heater and water when installing with slide mounting brackets.

Follow standard welding safety and operational procedures when attaching sliderails to bottom of dishtable.

5. Install unit under dishtable using mounting slide brackets, if applicable (Compact Series only).
 - a. Weld slide rails to bottom of dishtable.
 - b. Using Hatco slide brackets as a template, drill 1/8" (3 mm) holes into the sides of the heater jacket.
 - c. Attach slide brackets to sides of heater with supplied screws.
 - d. Slide heater onto slide rails under dishtable.



Hanging Support



Compact Series Heater Mounted to Dishtable

INSTALLATION

Plumbing Installation

WARNING

Do not connect booster water heaters to domestic (consumer) dish machines or other domestic utilized equipment. This booster may damage domestic equipment.

Do not connect an expansion tank of any type to booster heater water lines.

Use only plumbing material suitable for a minimum water temperature of 200°F (93°C). Materials used must meet National Sanitation Foundation (NSF) specifications and all local plumbing codes and regulations.

Refer to the BOOSTER HEATER SIZING CHART in this manual to ensure proper sizing and avoid personal injury and/or damage to the booster heater.

CAUTION

Do not connect booster heater directly to a boiler or furnace coil or any other uncontrolled temperature source. The booster heater thermostat could be damaged causing unit to overheat.

NOTICE

Use dielectric couplings when connecting dissimilar metals, such as galvanized to copper. This will prevent electrolysis or premature plumbing damage.

DO NOT turn or adjust inlet water connection on Compact Series Booster Heaters. Doing so will change the internal water flow.

Do not back out or loosen any pipe fittings. Doing so may cause leaks.

Do not lay unit on the side with the control panel. Damage to the unit could occur.

Incoming water in excess of 3 grains of hardness per gallon (GPG) (0.75 grains of hardness per liter [GPL]) must be treated and softened before being supplied to booster heater(s). Water containing over 3 GPG (0.75 GPL) will decrease efficiency, increase energy use, and reduce the operating life of the unit through increased lime build-up. Product failure caused by liming or sediment buildup is not covered under warranty.

Do not use deionized water. Deionized water will shorten the life of water reservoir and heating element.

NOTE: Product failure caused by liming or sediment buildup is not covered under warranty.

NOTE: A 3/4" union and a drain valve are required for easy servicing.

NOTE: An optional flow restrictor (P/N 03.02.074.00) is available for installation on the water inlet line.

NOTE: Some dish machines require two booster heaters to be plumbed in series (not parallel) to meet the demand. To ensure proper operation, a 30°F (-1°C) temperature differential must be maintained between the outlet of the first booster heater and the inlet of the second booster heater.

Inlet

Use the following procedure to install the inlet assembly. Refer to the appropriate "Plumbing Connections" diagram in this section for more information.

1. Connect the booster water inlet to a hot water supply line from a normal water heater.

- Water temperature from the water heater should be 110°–140°F (43°–60°C) and **should not exceed 160°F (71°C)**. Minimum temperature differential between inlet and outlet should never be less than 30°F (-1°C).

NOTE: Refer to BOOSTER HEATER SIZING CHART for application information.

NOTE: The red mark on the inlet and outlet water pipes of Compact series units must remain in the top most position.

2. Install a shut-off valve (a full opening gate or ball type).
3. Install one of the temperature/pressure gauges.

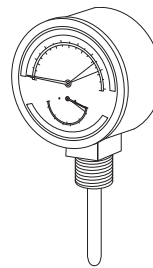
- When installing the temperature/pressure gauge, the temperature sensing element must be in the water stream and the gauge must be mounted upright.

NOTE: Tighten gauge during installation by turning the 1/2" brass nut only. DO NOT turn the face of the gauge. Turning the face will cause inaccurate measurements.

CAUTION

Hatco requires that two temperature/pressure gauges (Hatco P/N 03.01.003.00) be installed to ensure proper operation. Install one in the supply line before the pressure reducing valve and one in the outlet line as close to the booster heater as possible. This provides a visual check of the water temperature and pressure before and after the water heater.

NOTE: If a check valve is installed and cannot be removed, install a back pressure relief valve (P/N 03.02.039.00) set at 125 psi (862 kPa) on the incoming line between the pressure reducing valve and the inlet to the booster heater. Discharge must be to open site drain.



Temperature/Pressure Gauge

4. Install the pressure reducing valve if water pressure available to the booster heater inlet is over 25 psi (172 kPa).

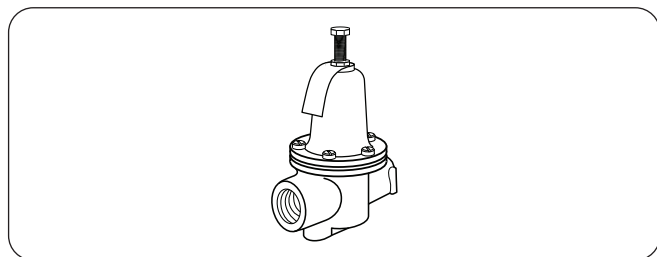
- Set pressure reducing valve at 20 psi (138 kPa) flow pressure.

NOTE: Be sure water flows through the pressure reducing valve in the proper direction. Check directional arrow. Valve will reduce pressure only during flow conditions.

CAUTION

If water supply pressure to the booster inlet is over 20 psi (138 kPa) during flow, install pressure reducing valve with built-in bypass (Hatco P/N 03.02.004.00) for proper operation of dish machine rinse nozzles.

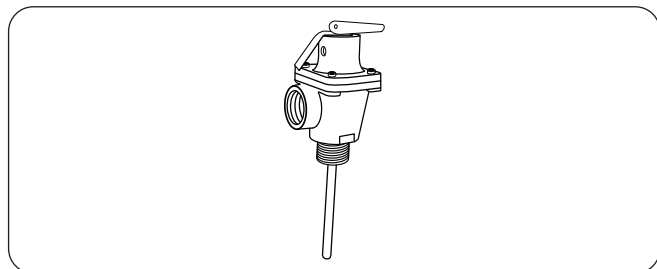
NOTE: The pressure reducing valve must be the type equipped with a high pressure bypass, as supplied by Hatco.



Pressure Reducing Valve

5. Install the temperature/pressure relief valve.

- Mini-Compact Series: P/N 03.02.020.00
- Compact and Imperial Series: P/N 03.02.022.00



Temperature/Pressure Relief Valve

WARNING

Temperature/pressure protective equipment should not be less than a combination temperature/pressure relief valve certified by a nationally recognized testing laboratory that maintains periodic inspection of the production of this equipment and meets the requirements for Relief Valves and Automatic Shutoff Devices for Hot Water Supply Systems, ANSI Z21.22-1979. The temperature/pressure relief valve must be marked with a minimum set pressure not to exceed the marked hydrostatic test pressure of the booster heater as noted on the unit specifications.

FOR INSTALLING PRESSURE AND TEMPERATURE RELIEF VALVES IN ACCORDANCE WITH AMERICAN NATIONAL STD. Z21.22-1979. Combination pressure and temperature relief valves with extension thermostats must be installed so that the temperature-sensing element is immersed in the water within the top 6" (152 mm) of the tank. They must be installed directly in a tank tapping. Combination pressure and temperature relief valves that do not have extension elements must be mounted directly in a tank tapping located within the top 6" (152 mm) of the tank, and shall be adequately insulated and located so as to assure isolation from ambient conditions that are not indicative of stored water temperature. **TO AVOID WATER DAMAGE OR SCALDING DUE TO VALVE OPERATION, DRAIN PIPE MUST BE CONNECTED TO VALVE OUTLET AND RUN TO A SAFE PLACE OF DISPOSAL.** Discharge line must be as short as possible and be the same size as the valve discharge connection throughout its entire length. Drain line must pitch downward from the valve and must terminate between 1-1/2" (38 mm) and 6" (152 mm) above the floor drain where any discharge will be clearly visible. The drain line shall terminate plain, not threaded, with material serviceable for temperatures up to 250°F (121°C) or greater. Excessive length, over 30' (9.1 m), or use of more than four elbows can cause a restriction and reduce the discharge capacity of the valve. No shut-off valve shall be installed between the relief valve and tank, or in the drain line. Valve lever must be tripped periodically to assure that waterways are clear. This device is designated for emergency safety relief and shall not be used as an operating control. The valves are set to relieve at 150 psi (1034 kPa) or when water temperature reaches 210°F (99°C). Read tag on valve for additional information.

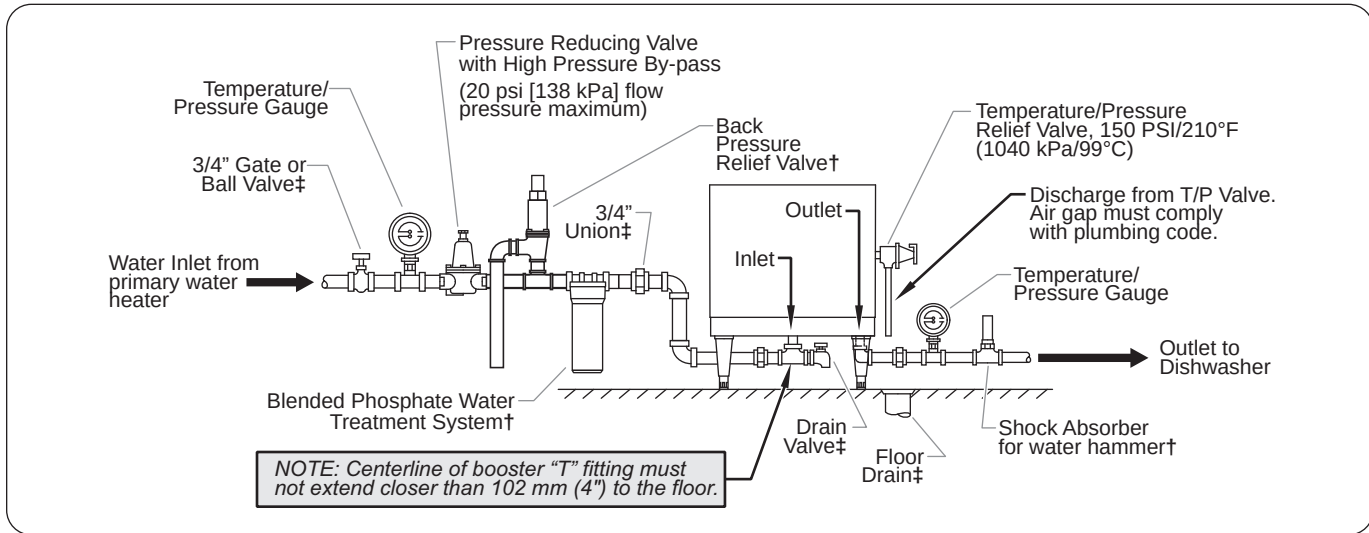
CAUTION

BURN HAZARD: Valves supplied by Hatco are designed for high temperature commercial operation. Do not substitute Hatco valves with valves designed for domestic water heaters.

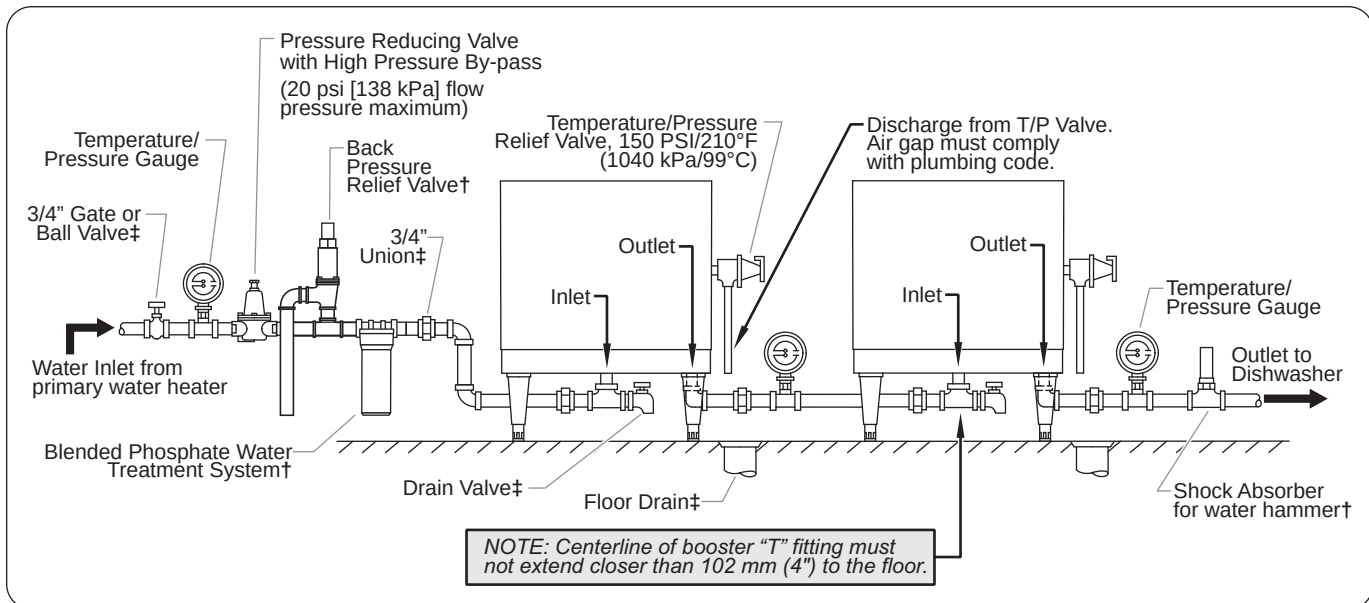
Do not use an anti-siphon or check valves on incoming water line.

INSTALLATION

Plumbing Connections



Imperial "S" Series



Two Imperial Models Connected in Series

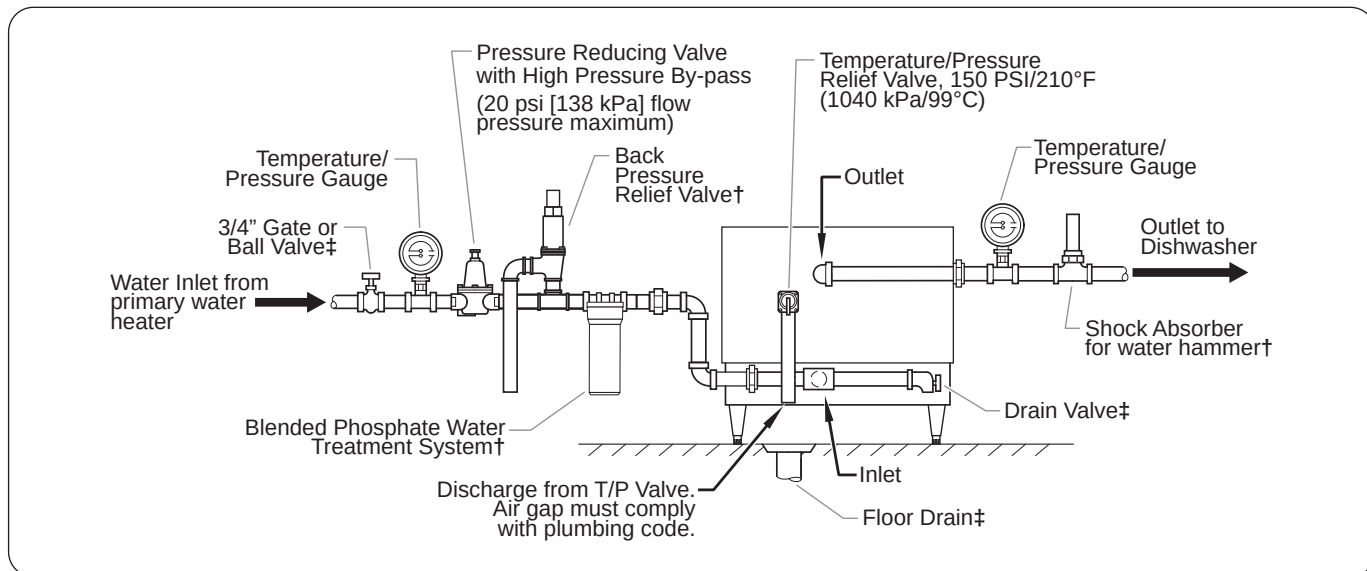
† Not supplied, but is available as an option/accessory.

‡ Not supplied with booster heater.

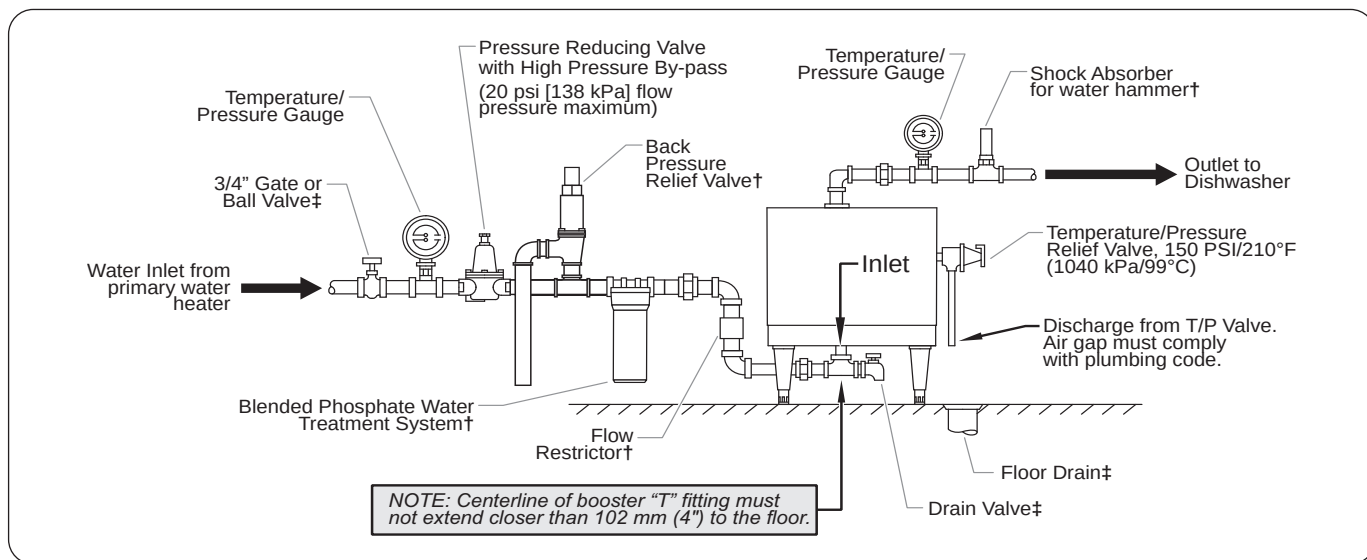
⚠ WARNING

Valves, gauges, and unions must be installed per diagram to ensure proper operation, servicing, and warranty coverage.

Plumbing Connections



Compact Series



Mini-Compact Models

† Not supplied, but is available as an option/accessory.

‡ Not supplied with booster heater.



WARNING

Valves, gauges, and unions must be installed per diagram to ensure proper operation, servicing, and warranty coverage.

INSTALLATION

Outlet

1. Flush the water supply line to remove any pipe compound and foreign matter.
2. Connect the booster heater water outlet to the commercial dish machine sanitizing rinse pipe connection using a 3/4" union and piping.

NOTICE

DO NOT turn or adjust water outlet connection on Large Compact Series units (C-24 to C-57).

NOTE: Red mark on water outlet pipe for C-24 to C-57 series units must remain in the top most position.

NOTE: Be certain the connection is made to the final rinse and not to the wash tank.

3. Install a temperature/pressure gauge in the outlet line. The temperature sensing element must be in the water stream and the gauge must be mounted upright.

- Water temperature at the outlet should be 185°–190°F (85°–88°C).

NOTE: Some dish machines require two booster heaters to be plumbed in series (not parallel) to meet the demand. To ensure proper operation, a 30°F (-1°C) temperature differential must be maintained between the outlet of the first booster heater and the inlet of the second booster heater.

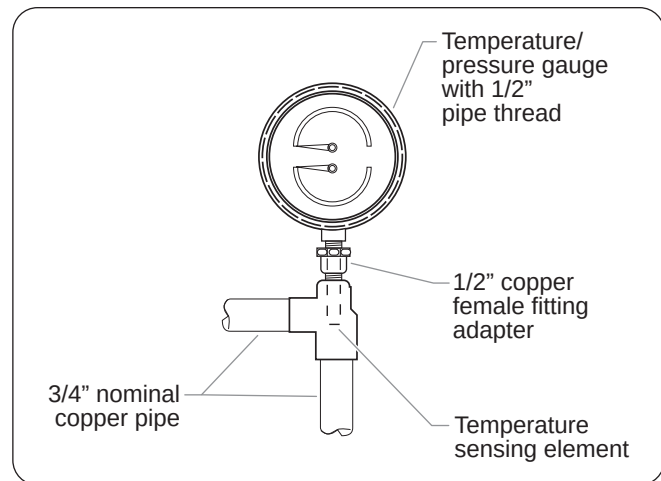
NOTE: Hatco recommends installing an optional shock absorber (P/N 03.04.057.00) in the outlet line as close as possible to the commercial dish machine solenoid rinse valve. The shock absorber softens the water hammer caused by automatic dish machine valves.

Plumbing Installation Inspection

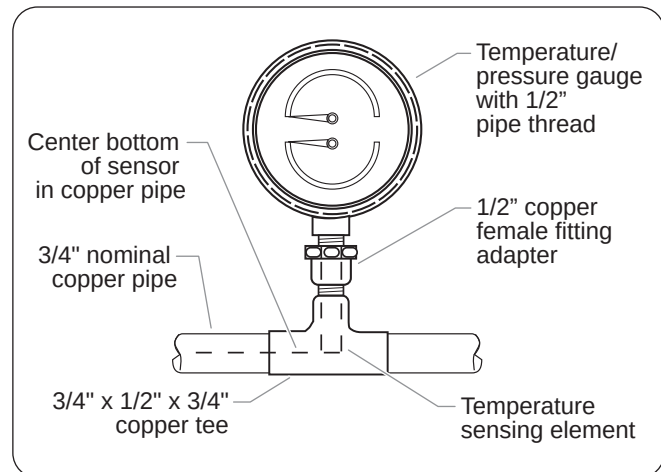
1. Close the drain valve and fill the booster heater with water.
2. Check all pipe connections for leaks.
3. Make sure the temperature/pressure relief valve discharge is not blocked.
4. Vent air from the tank before operating by opening the temperature/pressure relief valve.

CAUTION

DO NOT turn on power to the booster heater until tank has been filled with water and all air has been vented through the dish machine rinse nozzle. The heating elements will burn out in seconds if operated when they are not immersed in water.



Recommended Temperature/Pressure Gauge Installation



Alternate Temperature/Pressure Gauge Installation

WARNING

Hatco has always endorsed the use of safety equipment when using a booster water heater or storage-type water heater. Hatco booster heaters are shipped with a temperature/pressure relief valve at no extra charge. This valve must be installed into the marked opening provided in the tank. Valves supplied by Hatco are designed for high temperature commercial operation. Do not substitute Hatco supplied valves with valves designed for domestic operation.

It is essential to recognize that even though a water heater may be properly installed initially and approved, there always exists the possibility that unknowing individuals might alter or change the installation in a manner that would render it unsafe. Therefore, it is important that all safety programs provide some mechanism to assure that these installations are inspected periodically.

Electrical — All Sizes and Voltages

General

Hatco Electric Booster Water Heaters are available for operation on standard power systems. Check the specification label for the proper power supply.

All internal electrical connections have been made at the factory. See the "Circuit Breaker and Fused Disconnect Switch" chart in the SPECIFICATIONS section for supply wire size, fuse, breaker, and conduit recommendations. Consult local codes for verification and compliance.

⚠ WARNING

ELECTRIC SHOCK HAZARD:

- Unit must be installed by qualified, trained installers. Installation must conform to all local electrical and plumbing codes. Installation by unqualified personnel will void the unit warranty and may lead to electric shock or burn, as well as damage to unit and/or its surroundings. Check with local plumbing and electrical inspectors for proper procedures and codes.
- Turn OFF power at fused disconnect switch/circuit breaker and allow unit to cool before performing any cleaning, adjustments, or maintenance.
- Consult a licensed electrical contractor for proper electrical installation conforming to local electrical codes and the National Electrical Code (N.E.C.).

NOTICE

Units are voltage-specific. Refer to specification label for electrical requirements before beginning installation. Connecting unit to incorrect power supply will void product warranty and may damage unit.

Electrical Connections

1. Remove the front jacket cover screws, pull the cover forward and remove the cover.

NOTE: On Imperial models, there is a hinged access panel under the front jacket cover. Remove the bottom screw and lift the panel up to expose the fuse blocks.

- On Mini-Compact models, remove front cover screws. Ease cover forward and upward.
- On Compact models, the control box is under the front hinged jacket cover.

2. Locate the heater terminal or fuse block(s) inside the unit.

NOTE: See "Circuit Breaker and Fused Disconnect Switch" chart in the SPECIFICATIONS section for proper connections and wire size.

NOTE: Only 6, 7, and 9 kW models, in 208 or 240 volt, can be converted to single or three phase in the field. Refer to the wiring diagram for proper wiring connections at the terminal block.

3. Bring power leads from a properly sized disconnect switch or circuit breaker through the knockout provided on the unit. Connect leads to the terminal or fuse block(s). **USE COPPER WIRE ONLY. TIGHTEN CONNECTIONS PROPERLY TO A MINIMUM OF 40 INCH POUNDS.**

NOTE: Due to the rigors of transportation all connections should be checked for tightness before heater is put into operation.

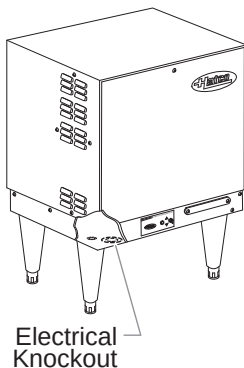
4. Properly connect an equipment grounding connector to the grounding lug (located near the supply terminals).

⚠ CAUTION

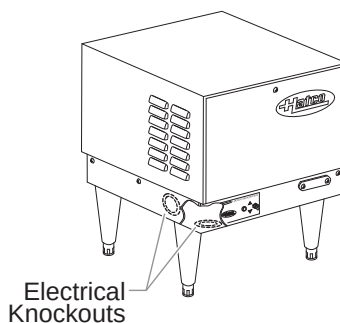
DO NOT turn on power to the booster heater until tank has been filled with water and all air has been vented through the dish machine rinse nozzles. Heating elements will burn out in seconds if operated when not immersed in water.

5. Replace and secure cover(s).

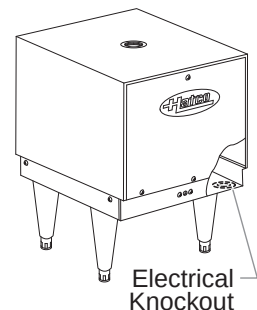
Imperial Series



Compact Series



Mini-Compact Series



Electrical Knockout Locations

OPERATION

General

Use the following procedures to operate Hatco Electric Booster Water Heaters.

CAUTION

BURN HAZARD: Water in unit is very hot. Wear protective gloves and proper attire when operating to avoid injury.

Startup

1. Close the drain valve.
2. Open the shutoff valve to the primary water supply line. The water temperature at inlet should be 110° to 140°F (43° to 60°C) and should not exceed 160°F (71°C).

NOTE: Minimum temperature differential between inlet and outlet should never be less than 30°F (-1°C).

3. Vent all the air from the tank through the dish machine rinse nozzles and the temperature/pressure relief valve when the tank is filled with water.

CAUTION

DO NOT turn on power to the booster heater until tank has been filled with water and all air has been vented through the dish machine rinse nozzles. Heating elements will burn out in seconds if operated when not immersed in water.

4. Check all plumbing connections for leaks.
5. Check the temperature/pressure relief valve discharge opening to be sure it is not blocked and no scale or other foreign matter has reduced the size of the opening.
6. Turn on the booster water heater.
 - For Imperial and Compact models, move the Power ON/OFF (I/O) switch on the control panel to the ON (I) position.
 - For Mini-Compact models, turn on power at the fused disconnect switch/circuit breaker.

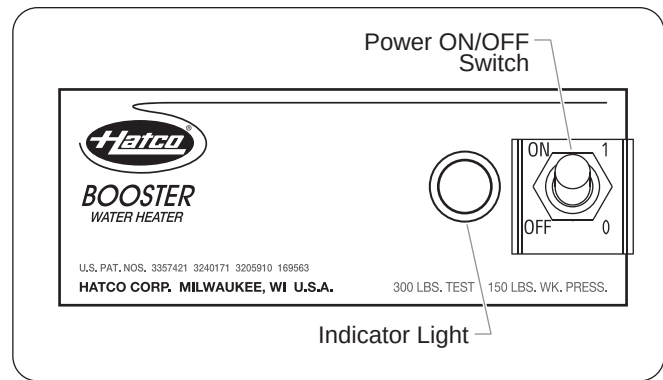
NOTE: Mini-Compact models can be configured with an optional Power ON/OFF (I/O) switch.

7. When the booster water heater has had sufficient heating time, operate the rinse cycle and check the water temperature and pressure readings on the gauges.
 - Water temperature at the booster outlet should be 185°–190°F (85°–88°C) and flow pressure should be 20 psi (138 kPa) maximum.

NOTE: Outlet water temperatures can be adjusted for Low-Temperature Dish Machine applications. See the MAINTENANCE section for thermostat adjustment procedure.

WARNING

Units are equipped with a high temperature limit safety switch that will shut off the power if the unit overheats. Contact an Authorized Hatco Service Agent if the high temperature limit safety switch cannot be reset or continues to trip.



Control Panel (Imperial and Compact models shown)

Shutdown

Under normal and regular operation, Hatco recommends that the unit be turned on at all times.

If the booster heater will not be used for an extended period of time or will be exposed to freezing conditions it should be drained to prevent damage to the unit.

1. Move the Power ON/OFF (I/O) switch to the OFF (O) position, and turn off power at the fused disconnect switch/circuit breaker.
2. Close the shutoff valve to the primary water supply line.
3. Open the drain valve and drain the water from the booster heater tank.

NOTICE

Always drain booster heater with power to the unit off or element burnout could occur.

General

Electric Booster Water Heaters are designed for maximum durability and performance with minimum maintenance.



WARNING

ELECTRIC SHOCK HAZARD:

- Turn OFF power at fused disconnect switch/circuit breaker and allow unit to cool before performing any cleaning, adjustments, or maintenance.
- DO NOT submerge or saturate with water. Unit is not waterproof. Do not operate if unit has been submerged or saturated with water.
- Do not steam clean or use excessive water on unit.
- Do not clean unit when it is energized or hot.
- This unit must be serviced by qualified personnel only. Service by unqualified personnel may lead to electric shock or burn.
- Use only Genuine Hatco Replacement Parts when service is required. Failure to use Genuine Hatco Replacement Parts will void all warranties and may subject operators of the equipment to hazardous electrical voltage, resulting in electrical shock or burn. Genuine Hatco Replacement Parts are specified to operate safely in the environments in which they are used. Some aftermarket or generic replacement parts do not have the characteristics that will allow them to operate safely in Hatco equipment.

This unit has no “user-serviceable” parts. If service is required on this unit, contact an Authorized Hatco Service Agent or contact the Hatco Service Department at 800-558-0607 or 414-671-6350; fax 800-690-2966; or International fax 414-671-3976.

Thermostat Adjustment

The thermostat is factory calibrated at 185°–190°F (85°–88°C). If adjustment or recalibration is required due to the rigors of transportation, use the following procedure.

NOTE: Low temperature dish machines require the thermostat(s) to be adjusted to 140°–150°F (60°–66°C).

1. Move the Power ON/OFF (I/O) switch to the OFF (O) position and unplug the unit from the power source.
2. Remove the access cover.
3. Adjust the temperature setpoint to the desired temperature.
 - To lower the temperature setpoint, turn the outer screw counterclockwise.
 - To raise the temperature setpoint, turn the outer screw clockwise.

NOTE: 1/6 turn of the outer screw equals 12°F (6.7°C).

NOTE: If recalibration is necessary, with the outer screw at high stop, turn the inner screw clockwise to raise the set point.

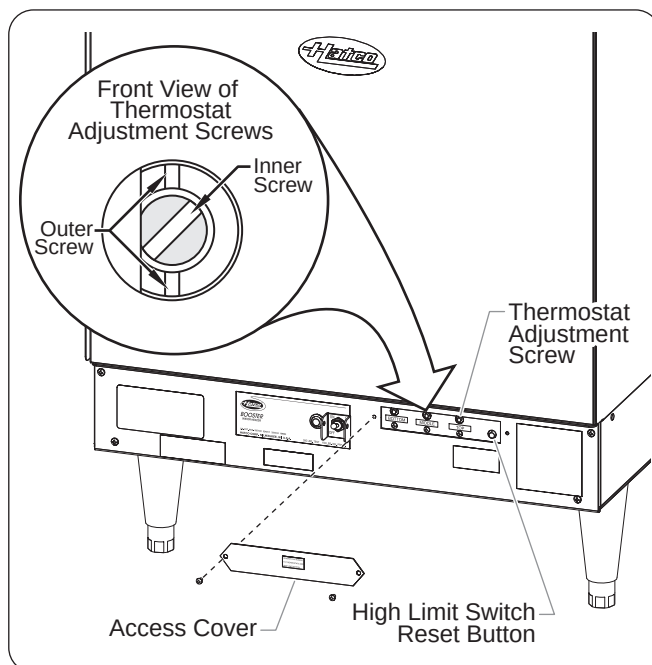
NOTE: 1/6 turn of the inner screw equals 8°F (4.4°C).

High Temperature Limit Safety Switch

All Hatco Electric Booster Water Heaters are equipped with a manually reset high temperature limit safety switch. If the temperature of the water in the heater exceeds 210°F (99°C) the safety switch will shut off the power. The switch must be manually reset.

If the high temperature limit safety switch needs to be reset use the following procedure:

1. Move the Power ON/OFF (I/O) switch to the OFF (O) position and unplug the unit from the power source.
2. Remove the access cover.
3. Push the red reset button.
4. If tripping repeats, call an Authorized Service Agent.



Thermostat Adjustment and High Temperature Limit Safety Switch

OPTIONS AND ACCESSORIES

Stainless Steel Adjustable Legs

Stainless steel adjustable legs (P/N 05.30.070.00) are available as accessories for all models.

Use the following procedure to install legs:

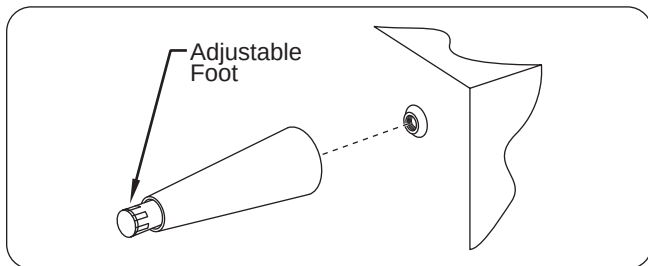
1. Carefully place unit on its side.

NOTICE

Do not lay unit on the side with the control panel. Damage to the unit could occur.

2. Thread the adjustable legs into the existing leg holes on the bottom of the unit.
3. After all legs are secure, return the unit to the upright position.

NOTE: If unit is not level, use an adjustable wrench to adjust the foot of each leg until unit is level. Each leg is adjustable from 6" (152 mm) to 7" (178 mm).



Stainless Steel Adjustable Legs

Floor Mounting Legs

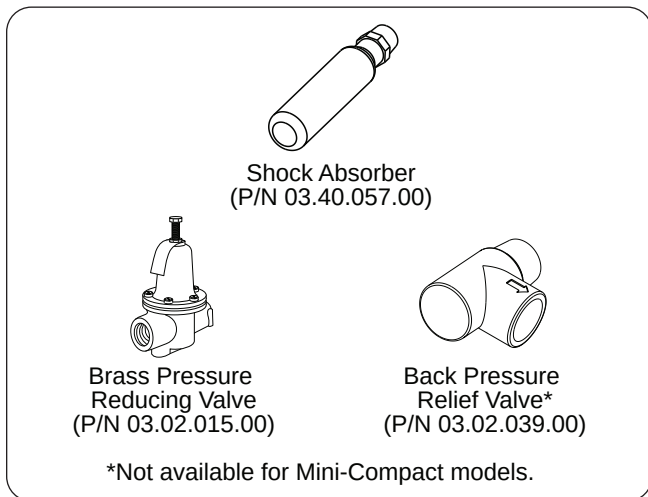
Stainless steel adjustable legs with deck mounting flanges secure the booster heater to the floor are available options for Compact and Imperial models only.

Mounting Slide Brackets

A set of optional mounting slide brackets is available for Compact models only. (P/N R04.20.030.00)

Plumbing Accessories

A shock absorber, a brass pressure reducing valve, and a back pressure relief valve are available as accessories.



*Not available for Mini-Compact models.

Plumbing Accessories

Blended Phosphate Water Treatment System

The optional Blended Phosphate Water Treatment System (P/N 03.05.061.00) dispenses a small amount of polyphosphate into the water. The polyphosphate prevents the buildup of mineral molecules.

The optional blended phosphate water treatment system is installed with unions on the incoming 3/4" water supply line after the pressure reducing valve and before the booster heater.

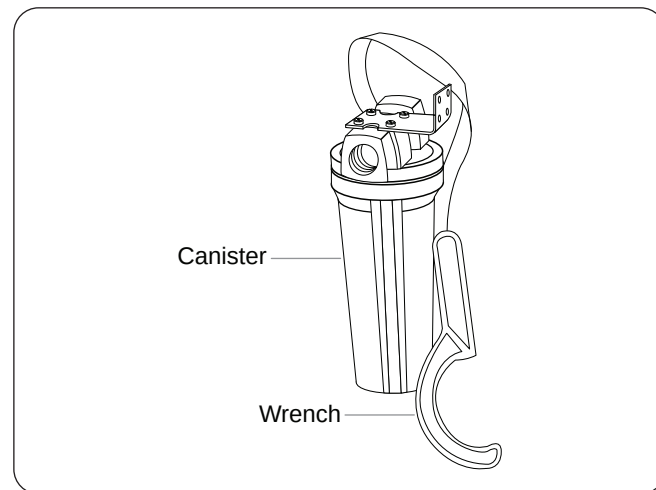
Replacing a Phosphate Cartridge (P/N 03.05.061A.00)

Cartridges supplied have a usage rating of 100,000 gallons (378,541 liters) of water. To ensure proper operation, the cartridges must be replaced when the compound is near the bottom of the cartridge.

Use the following procedure for replacement:

1. Move the ON/OFF (I/O) switch to the OFF (O) position.
 2. Shut off water supply and open the drain valve to remove water in piping.
 3. Loosen the canister using the attached wrench.
 4. Remove canister and discard depleted cartridge.
 5. Using a clean damp cloth, wipe the interior of the canister clean.
- NOTE: Make sure the O-ring seal is placed properly in the canister.*
6. Reverse the above procedure to reinstall.

NOTE: Product failure caused by liming or sediment buildup is not covered under warranty.



Blended Phosphate Water Treatment System

Stainless Body and Base

An optional stainless body and base is available for all models.

Security Package

A security package is a factory-installed option for Compact and Imperial models only. A security package contains Torx® screws and a control cover.

IMPORTANT! Read Before Using the Troubleshooting Guide

Many times when a booster heater does not appear to be functioning properly, the fault is not with the booster heater itself but with factors outside the heater.



WARNING

ELECTRIC SHOCK HAZARD:

- Turn OFF power at fused disconnect switch/circuit breaker and allow unit to cool before performing any cleaning, adjustments, or maintenance.
- This unit must be serviced by qualified personnel only. Service by unqualified personnel may lead to electric shock or burn.

Before proceeding with the "Troubleshooting Guide" to diagnose an issue, check ALL of the following outside factors.

Water Temperature

- Check the temperature of the water feeding into the booster tank. It must be 110° to 140°F (43° to 60°C), depending on the heating capability of the unit. The inlet water supply must be of sufficient quantity to hold its temperature throughout the dishwashing operation.
- If the wash tank of the dish machine is filled through the booster heater, this will use up all of the 180°F (82°C) water in storage. Sufficient time must be allowed to reheat the water in storage before starting the dish machine.
- Primary water heater temperature should not exceed 160°F (71°C).

Water Pressure

- Water pressure at the inlet to the booster heater must be adequate for proper operation of the rinse cycle of the dish machine, not to exceed 20 psi (138 kPa). Check with dish machine manufacture for specific details.
- If incoming water exceeds 20 psi (138 kPa), a pressure reducing valve must be installed.

Electrical Connections

- Booster heater voltage must be correct for voltage available. Check the specification label on the booster heater for full information.
- The breakers or fuses MUST be properly sized.

Plumbing Connections

- The temperature/pressure relief valve must be properly installed and be supplied by Hatco.
- A check valve should not be installed ahead of the booster.

NOTE: If a check valve is installed and cannot be removed, install a back pressure relief valve (P/N 03.02.039.00) set at 125 psi (862 kPa) on the incoming line between the pressure reducing valve and the inlet to the booster heater. Discharge must be to open site drain.

If the unit does not function properly after performing these checks, continue to the "Troubleshooting Guide" in this section.

TROUBLESHOOTING GUIDE

WARNING

This unit must be serviced by qualified personnel only. Service by unqualified personnel may lead to electric shock or burn.

WARNING

ELECTRIC SHOCK HAZARD: Turn OFF power at fused disconnect switch/circuit breaker and allow unit to cool before performing any cleaning, adjustments, or maintenance.

Symptom	Probable Cause	Corrective Action
Water reaches 180°F (82°C) but does not last through the entire dish machine operation.	Low incoming water temperature.	Incoming water temperature must be adequate for booster size. Increase incoming water temperature.
	Incoming water temperature drops.	Primary water supply is not adequate to provide correct temperature in sufficient quantities. Increase supply of primary hot water.
	Flow pressure is too high.	Higher pressure uses an excessive quantity of hot water. Adjust flow pressure to 20 psi (138 kPa).
	Booster heater may be undersized.	Booster heater must be properly sized for incoming water temperature and rinse requirements of the dish machine.
	Incorrect voltage.	Check voltage on heater serial plate and make sure supplied voltage matches. A 240V booster heater operating on 208V reduces wattage to 76% efficiency.
The booster heater does not heat at all or only delivers water at 120°- 150°F (49°-66°C).	Unit may have been energized without water (dry fired) causing the element(s) to burn out quickly.	Replace the element(s).
	Fuses may be blown or circuit breaker tripped.	Check for proper fuse sizing. Replace fuses. Check/reset circuit breaker.
	Over-current fuses may be blown.	Check for shorted elements, bad fuse block or short in wiring.
	Temperature setting out of calibration or inoperable.	Temperature setting should be maximum of 190°F (88°C).
	Contactors do not pull in.	Test for voltage at coils. If coils are open or shorted, replace contactors.
	High limit switch may be tripped or defective.	Reset switch, refer to "High Temperature Limit Safety Switch" in the MAINTENANCE section. If switch continues to trip or cannot be reset contact an Authorized Service Agent.
	Transformer not working properly.	Check secondary voltage, it should be the same as the control circuit voltage. If not, replace the transformer.
	Low water cutoff inoperable, contacts do not close.	Remove probe wire and touch it to the tank. If contacts close, probe is fouled and must be cleaned or replaced. Relay on circuit board maybe defective. Jumper terminals 6 and 7. If unit energizes, circuit board is defective and should be replaced.

TROUBLESHOOTING GUIDE

Symptom	Probable Cause	Corrective Action
Water at dish machine is not at the proper temperature.	Gauge(s) not working properly.	Check temperature of water with a thermometer to be certain gauges are working correctly. If not, replace gauge(s).
	Thermostat set too low.	Adjust or recalibrate, refer to "Thermostat Adjustment" in the MAINTENANCE section. If thermostat will not recalibrate properly, replace it.
	Booster heater has more than (5) linear feet (1524 mm) of water pipe to the dish machine, causing the water to cool off inside the pipe.	If located farther than 5 linear feet (1524 mm), pipes should be wrapped in insulation, and/or a recirculating system installed.
Heating element(s) burn out.	Tank inadvertently drained leaving element(s) in a dry condition.	Replace element(s), and make sure tank is full of water at all times. Check low water cut-off system for proper operation.
	Lime buildup in tank causing element(s) to split and burn out.	Replace element(s), and clean or delime tanks periodically. A water softener or blended phosphate treatment system may be required.
Relief valve dribbles.	No pressure reducing valve installed or incorrect valve installed causing pressure build-up inside booster tank.	A pressure reducing valve with high pressure bypass must be installed in the incoming water line to allow water to expand back into the feed line.
	Bypass in pressure reducing valve may be blocked.	Clean bypass or replace with new valve with built in bypass.
	Check valve or anti-siphon valve installed in the feed line.	Remove check valve or anti-siphon valve to allow for water expansion or install a back pressure relief valve (P/N 03.02.039.00) on the incoming water line.
Relief valve opens.	Unit is overheating.	Thermostat may be set too high or is sticking. Recalibrate or replace the thermostat.
	Contactor may be sticking in closed position not allowing unit to cycle off.	Replace contactor(s).
High temperature limit safety switch trips.	Temperature limit safety switch is defective.	If booster heater is not overheating, replace High Limit Safety Switch.
	Thermostat set too high.	Adjust or recalibrate, refer to "Thermostat Adjustment" in the MAINTENANCE section.
	Incoming water temperature too high causing nuisance tripping of high temperature limit switch.	Incoming water temperature should not be higher than 160°F (71°C).
Chattering contactor or low water cutoff circuit board	Loose connections or wire connection has insulation under crimp.	Tighten all connections and check crimps
	Low voltage.	Check control circuit voltage or secondary voltage with transformer.
	Probe may be fouled.	Bypass probe by removing wire from low water cutoff probe and grounding to tank. Clean or replace probe if chattering stops.
	Contactor(s) may be bad.	Test contactor coils and replace if needed.

LIMITED WARRANTY

1. PRODUCT WARRANTY

Hatco warrants the products that it manufactures (the "Products") to be free from defects in materials and workmanship, under normal use and service, for a period of one (1) year from the date of purchase when installed and maintained in accordance with Hatco's written instructions or 18 months from the date of shipment from Hatco. Buyer must establish the Product's purchase date by registering the Product with Hatco or by other means satisfactory to Hatco in its sole discretion.

Hatco warrants the following Product components to be free from defects in materials and workmanship from the date of purchase (subject to the foregoing conditions) for the period(s) of time and on the conditions listed below:

a) One (1) Year Parts and Labor PLUS One (1) Additional Year Parts-Only Warranty:

Conveyor Toaster Elements (metal sheathed)
Drawer Warmer Elements (metal sheathed)
Drawer Warmer Drawer Rollers and Slides
Strip Heater Elements (metal sheathed)
Display Warmer Elements (metal sheathed air heating)
Holding Cabinet Elements (metal sheathed air heating)
Heated Well Elements — HWB Series (metal sheathed)

b) One (1) Year Parts and Labor PLUS Four (4) Years Parts-Only Warranty:

3CS and FR Tanks

c) One (1) Year Parts and Labor PLUS Nine (9) Years Parts-Only Warranty on:

Electric Booster Heater Tanks
Gas Booster Heater Tanks

d) Ninety (90) Day Parts-Only Warranty:

Replacement Parts

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR PATENT OR OTHER INTELLECTUAL PROPERTY RIGHT INFRINGEMENT. Without limiting the generality of the foregoing, SUCH WARRANTIES DO NOT COVER: Coated incandescent light bulbs, fluorescent lights, heat lamp bulbs, coated halogen light bulbs, halogen heat lamp bulbs, xenon light bulbs, LED light tubes, glass components, and fuses; Product failure in booster tank, fin tube heat exchanger, or other water heating equipment caused by liming, sediment buildup, chemical attack, or freezing; or Product misuse, tampering or misapplication, improper installation, or application of improper voltage.

2. LIMITATION OF REMEDIES AND DAMAGES

Hatco's liability and Buyer's exclusive remedy hereunder will be limited solely, at Hatco's option, to repair or replacement using new or refurbished parts or Product by Hatco or a Hatco-authorized service agency (other than where Buyer is located outside of the United States, Canada, United Kingdom, or Australia, in which case Hatco's liability and Buyer's exclusive remedy hereunder will be limited solely to replacement of part under warranty) with respect to any claim made within the applicable warranty period referred to above. Hatco reserves the right to accept or reject any such claim in whole or in part. In the context of this Limited Warranty, "refurbished" means a part or Product that has been returned to its original specifications by Hatco or a Hatco-authorized service agency. Hatco will not accept the return of any Product without prior written approval from Hatco, and all such approved returns shall be made at Buyer's sole expense. HATCO WILL NOT BE LIABLE, UNDER ANY CIRCUMSTANCES, FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, INCLUDING BUT NOT LIMITED TO LABOR COSTS OR LOST PROFITS RESULTING FROM THE USE OF OR INABILITY TO USE THE PRODUCTS OR FROM THE PRODUCTS BEING INCORPORATED IN OR BECOMING A COMPONENT OF ANY OTHER PRODUCT OR GOODS.

HATCO AUTHORIZED PARTS DISTRIBUTORS

ALABAMA

Jones McLeod Appl. Svc.
Birmingham 205-251-0159

ARIZONA

Service Solutions Group
Phoenix 602-234-2443

Byassee Equipment Co.
Phoenix 602-252-0402

CALIFORNIA

Industrial Electric
Commercial Parts & Service, Inc.
Huntington Beach 714-379-7100

Chapman Appl. Service
San Diego 619-298-7106

P & D Appliance
Commercial Parts & Service, Inc.
S. San Francisco 650-635-1900

COLORADO

Hawkins Commercial Appliance
Englewood 303-781-5548

FLORIDA

Whaley Foodservice Repair
Jacksonville 904-725-7800

3Wire Nass Service Co., Inc.
Orlando 407-425-2681

B.G.S.I.
Pompano Beach 954-971-0456

Comm. Appliance Service
Tampa 813-663-0313

GEORGIA

TWC Services
Mableton 770-438-9797

Heritage Service Group
Norcross 866-388-9837

Southeastern Rest. Svc.
Norcross 770-446-6177

HAWAII

Burney's Comm. Service, Inc.
Honolulu 808-848-1466

Food Equip Parts & Service
Honolulu 808-847-4871

ILLINOIS

Parts Town
Lombard 708-865-7278

Eichenauer Elec. Service
Decatur 217-429-4229

Midwest Elec. Appl. Service
Elmhurst 630-279-8000

Cone's Repair Service
Moline 309-797-5323

INDIANA

GCS Service
Indianapolis 317-545-9655

IOWA

Electric Motor Service Co.
Davenport 319-323-1823

Goodwin Tucker Group
Des Moines 515-262-9308

KENTUCKY

Service Solutions Group
Lexington 859-254-8854

Service Solutions Group
Louisville 502-451-5411

LOUISIANA

Chandlers Parts & Service
Baton Rouge 225-272-6620

MARYLAND

Electric Motor Service
Baltimore 410-467-8080

GCS Service
Silver Spring 301-585-7550

MASSACHUSETTS

Ace Service Co., Inc.
Needham 781-449-4220

MICHIGAN

Bildons Appliance Service
Detroit 248-478-3320

Commercial Kitchen Service
Bay City 517-893-4561

Midwest Food Equip. Service
Grandville 616-261-2000

MINNESOTA

GCS Service
Plymouth 800-345-4221

MISSOURI

General Parts
Kansas City 816-421-5400

Commercial Kitchen Services
St. Louis 314-890-0700

Kaemmerlen Parts & Service
St. Louis 314-535-2222

NEBRASKA

Anderson Electric
Omaha 402-341-1414

NEVADA

Burney's Commercial
Las Vegas 702-736-0006

Hi. Tech Commercial Service
N. Las Vegas 702-649-4616

NEW JERSEY

Jay Hill Repair
Fairfield 973-575-9145

Service Plus
Flanders 973-691-6300

NEW YORK

Acme American Repairs, Inc.
Brooklyn 718-456-6544

Alpro Service Co.
Brooklyn 718-386-2515

Appliance Installation
Buffalo 716-884-7425

Duffy's Equipment Services, Inc.
Buffalo 800-836-1014

3Wire Northern
Plattsburgh 800-634-5005

Duffy's Equipment Services, Inc.
Sauquoit 800-836-1014

J.B. Brady, Inc.
Syracuse 315-422-9271

NORTH CAROLINA

Authorized Appliance
Charlotte 704-377-4501

OHIO

Akron/Canton Comm. Svc. Inc.
Akron 330-753-6635

Service Solutions Group
Cincinnati 513-772-6600

Commercial Parts and Service
Columbus 614-221-0057

Electrical Appl. Repair Service
Brooklyn Heights 216-459-8700

E. A. Wichman Co.
Toledo 419-385-9121

OKLAHOMA

Hagar Rest. Service, Inc.
Oklahoma City 405-235-2184

Krueger, Inc.
Oklahoma City 405-528-8883

OREGON

Ron's Service, Inc.
Portland 503-624-0890

PENNSYLVANIA

Elmer Schultz Services
Philadelphia 215-627-5401

FAST Comm. Appl. Service
Philadelphia 215-288-4800

Appliance Installation & Service
Pittsburgh 412-809-0244

K & D Service Co.
Harrisburg 717-236-9039

Electric Repair Co.
Reading 610-376-5444

RHODE ISLAND

Marshall Electric Co.
Providence 401-331-1163

SOUTH CAROLINA

Whaley Foodservice Repair
W. Columbia 803-791-4420

TENNESSEE

Camp Electric
Memphis 901-527-7543

TEXAS

GCS Service
Fort Worth 800-433-1804

Armstrong Repair Service
Houston 713-666-7100

Cooking Equipment Specialist
Mesquite 888-866-9276

Refrigerated Specialist, Inc.
Mesquite 888-866-9276

Commercial Kitchen Repair Co.
San Antonio 210-735-2811

UTAH

La Monica's Rest. Equip. Service
Murray 801-263-3221

VIRGINIA

Daubers
Norfolk 757-855-4097

Daubers
Springfield 703-866-3600

WASHINGTON

3Wire Restaurant Appliance
Seattle 800-207-3146

WISCONSIN

A.S.C., Inc.
Madison 608-246-3160

A.S.C., Inc.
Milwaukee 414-543-6460

CANADA

ALBERTA

Key Food Equipment Service
Edmonton 780-438-1690

BRITISH COLUMBIA

Key Food Equipment Service
Vancouver 604-433-4484

Key Food Equipment Service
Victoria 250-920-4888

MANITOBA

Air Rite, Inc.
Winnipeg 204-895-2300

NEW BRUNSWICK

EMR Services, Ltd.
Moncton 506-855-4228

ONTARIO

R.G. Henderson Ltd.
Toronto 416-422-5580

Choquette - CKS, Inc.
Ottawa 613-739-8458

QUÉBEC

Choquette - CKS, Inc.
Montreal 514-722-2000

Choquette - CKS, Inc.
Québec City 418-681-3944

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International Fax (414) 671-3976
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See IMPORTANT OWNER INFORMATION
section for details.